

Shoalhaven Starches – Ethanol Expansion Project
MP06-0228

Final Response to Submissions

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MAJOR PROJECT – MP06_0228
SHOALHAVEN STARCHES – ETHANOL PRODUCTION UPGRADE
GOVERNMENT AGENCY SUBMISSIONS

<i>Submission Issues</i>	<i>Response</i>
<p><u>DEPARTMENT OF PLANNING</u></p> <p><i>Odour</i></p> <p>1. Please provide model run outputs in the form of contour plots for the existing plant with the environmental farm included as the existing base case.</p>	<p>Annexure A to this submission is a supplementary report by GHD Pty Ltd addressing the odour issues raised by the Department of Planning. Section 2.1 of Annexure A addresses this issue.</p>
<p>2. On page 33 of the GHD report it is noted that the bioscrubber has a residual odour from the biomass substrate. It appears that this odour has not been included in the emissions from the bioscrubber and it is the remaining 15% of the process odour that has been modelled. Therefore the claim that this odour will not be inherently offensive needs to be justified.</p>	<p>Section 2.2 of Annexure A to this submission addresses this issue.</p>
<p>3. Page 65, Section 8.1.1 of the GHD report refers to the fact that the bioscrubber will contribute less than 1 ou to the predicted odour impact at the most sensitive receptor, R1. It is not clear which scenario this relates to. The implication is that it refers to the existing factory with the Stage 1 controls. For the ethanol upgrade and subsequent Stage 2 and 3 controls, the emission rate increases by a factor of about 3-4. This should be clarified.</p>	<p>Section 2.3 of Annexure A to this submission addresses this issue.</p>
<p>4. It is noted in Section 8.1.2 and Figure 8.7 of the GHD report that there is not a significant increase to predicted odour levels at the selected receptors near the factory as a result of adding the odour emissions from the wastewater treatment plant from the environmental farm into the model that represents the factory after Stage 1 odour control plus the ethanol upgrade. An additional scenario needs to be presented that shows Stage 3 odour controls, ethanol upgrade and the environmental farm with all proposed odour controls in place. This model run represents the ultimate configuration proposed for the plant.</p>	<p>Section 2.4 of Annexure A to this submission addresses this issue.</p>

Department of Planning (continued)

Submission Issues	Response
<p>Development Consents</p> <p>Please provide copies of existing development consents covering key facilities at the site. For example:</p> <ul style="list-style-type: none"> • construction of wastewater storage ponds; • increases in ethanol production; • installation of dryers, raw water pipeline, sorghum plant, coal fired boiler, building extensions, etc. 	<p>Submitted with this response are hard and electronic copies of development consents for Shoalhaven Starches.</p>
<p>Hazards</p> <p>Please provide a response to the following queries.</p> <ol style="list-style-type: none"> 1. Clause 3.3.3 of the PHA refers to a cogeneration plant of 15 MW. However, Page 29 of the EA document refers to 40 MW. Please clarify. 2. Hazard ID table item E1 states that the actual ethanol storage is normally 50% of capacity. Please clarify if the hazard analyses for the existing plant assumed that ethanol quantity was 50% of capacity. Given the proposed increase in throughput by 2.3 times, justification is required for the 50% statement. 3. Hazard ID table item E2 states that only one ethanol load pump is used at any one time. Will the one pump loadout practice be followed after the increase in throughput? 4. Hazard ID table item E5 refers to distillation columns T680, T540 and T660. Please give the identifications for the existing columns and the additional column/s to be installed. 5. The PHA shows the risk contours. Please provide an assessment to demonstrate that the impact of the proposed activity on the existing site risk levels will not significantly increase the risks from the site and that the NSW published criteria are not exceeded. 6. Please state the surface emissive power used in the calculations for heat radiation from an ethanol fire, and the justification for using the particular value. 	<p>Annexure B(i) to this submission is a response from GHD to the specific issues raised by the Department while Annexure B(ii) is a revised Preliminary Hazard Analysis report prepared by GHD Pty Ltd. Section 3.3.3 of the revised PHA (Annexure B(i)) has been modified to refer to 40 MW Cogeneration Plant and this is discussed in Section 1, Page 4, Annexure B(i).</p> <p>Refer Section 2, Page 4, Annexure B(i).</p> <p>Refer Section 3, Page 4, Annexure B(i).</p> <p>Refer Section 4, Page 4, Annexure B(i).</p> <p>Refer Section 5, Page 4, Annexure B(i).</p> <p>Refer Section 6, Page 5, Annexure B(i).</p>

<i>Submission Issues</i>	<i>Response</i>
<p><u>DEPARTMENT OF ENVIRONMENT AND CLIMATE CHANGE</u></p> <p><i>1. Offensive Odour Impacts</i></p> <p>Shoalhaven Starches Pty Ltd propose a three staged approach to implementing works designed to control odour emissions from the premises, based on the findings of the Odour Audit Report. DECC recommends the following to address offensive odours generated at the premises;</p> <ul style="list-style-type: none"> i. No increase in production at the premises should be approved until the Stage 1 odour control works have been implemented and their effectiveness verified in accordance with the relevant conditions of the consent. ii. The Stage 1 works include the construction and operation of a waste water treatment plant and treatment of DDG plant odour sources by a bioscrubber as identified in the EA. iii. Shoalhaven Starches Pty Ltd should conduct a review of the effectiveness of all odour control works at the premises at regular intervals after any consent to increase production is granted. The interval should be approved by the Department of Planning and DECC. iv. Any consent issued should include Terms of Reference for the review identified at point iii. Above. v. The review must be conducted by a suitably qualified, independent expert. vi. The review must make a clear recommendation as to whether Stage 2, Stage 3 or any other odour control works require implementation. <p>All odour works installed as part of Stage 1 should have sufficient capacity, or be capable of being readily upgraded, to meet the requirements of Stage 2 and Stage 3 should they be implemented. This is especially the case with the bioscrubber treatment process proposed to treat emissions from the DDGS plant.</p>	<p>Shoalhaven Starches concur with this recommendation.</p> <p>Shoalhaven Starches concur with this recommendation.</p> <p>Section 8.3.7 of the EA, Statement of Commitments details a review methodology.</p> <p>Shoalhaven Starches concur with this recommendation.</p> <p>Shoalhaven Starches concur with this recommendation.</p> <p>Shoalhaven Starches concur with this recommendation.</p> <p>Shoalhaven Starches concur with this recommendation.</p>

Department of Environment and Climate Change (continued)

Submission Issues	Response
<p>2. Greenhouse Assessment</p> <p>DECC notes that greenhouse gas emissions are regulated at the Commonwealth level and emission reporting is now mandatory. Further, the Commonwealth has exhibited a green paper proposing a carbon pollution reduction scheme. It is important that the Proponent fully integrate consideration of the greenhouse emissions assessment and its economic implications into its investment planning. In particular, DECC notes that this may be relevant to the Proponent's selection of energy sources such as boiler fuels.</p>	<p>It is noted that DECC indicate that greenhouse gas emissions are regulated at Commonwealth level and that emission reporting is now mandatory. Shoalhaven Starches continually review their fuel and energy requirements in terms of greenhouse gas emission regulations and strategic investment planning.</p>
<p>3. Noise Impact Assessment</p> <p>The Noise Impact Assessment (NIA) suggests that the existing Licence limits for the entire site can be met through noise mitigation and management measures from the proposed Ethanol upgrade. The EA does not request any change to the existing Licence limits. The Statement of Commitments in Section 8 of the EA states that a Construction Environmental Management Plan will be implemented, lists the hours of construction and construction criteria and describes the construction and operational noise management measures that will be implemented to meet the limits.</p> <p>Accordingly, DECC does not anticipate any change to the current noise limits contained in the Environment Protection Licence.</p>	<p>It is noted that DECC does not anticipate any change to current noise limits contained in the Company's EPL.</p>
<p>4. Irrigation Management and Monitoring</p> <p>While the Statement of Commitments and Monitoring Program provide the general terms of a monitoring regime and operational management, the following issues require further attention:</p> <ul style="list-style-type: none"> • establishment of the baseline condition of the soil and groundwater and any steps necessary to modify or amend the current soil and crop system to ensure the proposal can be carried out; • sufficient detail and further refinement of the Monitoring Program, including development of sustainability indicators for relevant soil and groundwater parameters and specific parameters for analytes to be monitored, to adequately gauge the response of the system; 	<p>Shoalhaven Starches agrees with the following requirements to address these matters as outlined by the DECC.</p>

Department of Environment and Climate Change (continued)

Submission Issues	Response
<ul style="list-style-type: none"> • a Monitoring Program that links to operational management through appropriate ongoing assessment of the scheme for soil and groundwater condition trends and operational response; • operational planning to ensure that commitments underlying the proposal such as crop type, yield and irrigation techniques are carried out. 	
<p><u>Irrigation Management and Monitoring Program</u></p> <p>Prior to the commencement of operations, the Proponent should develop a Monitoring Program. The Monitoring Program should be developed to ensure that all public health, agricultural resource and environmental risks are monitored to provide sufficient data to manage any risks. The Monitoring Program should include, but not necessarily be limited to:</p> <ol style="list-style-type: none"> establishment of the baseline condition of the soil and groundwater. This should clearly establish the current soil characteristics and baseline condition of the irrigation site through an assessment of the current physical and chemical soil characteristics. In particular, a baseline for the areas to be used as monitoring points should be established; specific parameters to be monitored for all relevant analytes (eg. where soil monitoring will entail measuring both total concentration and exchangeable concentration); sampling and analytical methodologies; identification of appropriate 'sustainability indicators' (ie. trigger levels for relevant parameters such as phosphorus buffer capacity where phosphorus has been identified as an analyte that has a positive mass balance). 	<p>Shoalhaven Starches agrees with the imposition of this requirement as a condition of development consent.</p>
<p><u>Irrigation Management Plan</u></p> <p>Prior to the commencement of operations, the Proponent should develop and Irrigation Management Plan that clearly links the Monitoring Program to the proposed irrigation system design. This includes proposed responses to indicator trigger values. The Irrigation Management Plan should include, but not necessarily be limited to:</p> <ol style="list-style-type: none"> identification of the proposed irrigation areas; the expected analyte budgets; 	<p>Shoalhaven Starches agrees with the imposition of this requirement as a condition of development consent.</p>

Department of Environment and Climate Change (continued)

Submission Issues	Response
<ul style="list-style-type: none"> iii. the expected water balance; iv. the cropping cycling, grazing and management practices; v. the irrigation scheduling regime; vi. the management measures to minimise the risk of groundwater contamination; vii. any form of soil remediation required prior to irrigation in order to be able to operate the scheme as designed; viii. the management measures to be implemented if monitoring shows that the irrigation scheme is not operating effectively or has reached or likely to reach trigger levels. 	<p>Refer above</p>
<p><u>Irrigation Performance Reporting</u></p> <p>Within 12 months of the commencement of operations, and at an agreed frequency thereafter, the Proponent should submit an Annual Environmental Management Report for the project to DoP and DECC. The Report should include, but not necessarily be limited to:</p> <ul style="list-style-type: none"> i. results of all environmental monitoring required under the Monitoring Program; ii. a list of all occasions since the preceding report when environmental performance goals for the irrigation scheme have not been achieved (eg. any exceedances of sustainability indicator trigger values), indicating the reason for failure, the action taken to rectify the situation and the action taken to prevent recurrence of that type of incident; iii. graphical presentation of trends in monitoring data to-date, in relation to identified trigger levels where relevant, and discussion of these trends by a suitably qualified person; iv. mass balances for analytes using the monitoring data collected on irrigation volume and chemical composition, fertiliser applied, as well as information on crop yield, nutrient uptake and nutrient removal from the irrigation areas; 	<p>Shoalhaven Starches agrees with the imposition of this requirement as a condition of development consent.</p>

Department of Environment and Climate Change (continued)

Submission Issues	Response
<p>v. environmental management targets and strategies for the following reporting period, taking into account identified trends in monitoring results.</p> <p>In addition to the above, DECC suggests that in negotiation of the Monitoring Program that the groundwater monitoring initially be extended to include other analytes that may leach through the soil profile. At present it is proposed to only monitor magnesium.</p>	<p>Refer above.</p>

<i>Submission Issues</i>	<i>Response</i>
<p><u>DEPARTMENT OF PRIMARY INDUSTRIES</u></p> <p><i>Issues Related to Fisheries</i></p> <p>DPI Fisheries has reviewed the Environmental Assessment Report (EA) for the project (dated August 2008) and Appendices provided by the applicant and makes the following comments.</p> <p>DPI notes that there are several waterways adjacent to the proposed development sites including the Shoalhaven River, Bomaderry Creek, Broughton Creek and Abernethy's Creek.</p> <p>DPI places particular importance upon the need to minimise the harm to the natural environment both at the work sites and downstream during any development of the site. We expect any approval to require implementation of Best Management Practice with respect to erosion and sediment control during construction and operation, and appropriate and effective measures to be incorporated into a comprehensive erosion and sediment control management plan. Implementation of these measures is essential to safeguard and improve the aquatic environments and water quality of Bomaderry Creek, Broughton Creek, Abernethy's Creek and the Shoalhaven River.</p> <p>DPI has no objection to the proposed wastewater irrigation and management measures recommended for the proposed development in Annexures O(i) and (ii) - Agronomic Investigations by John Murtagh, Roy Lawrie and Glenys Lugg (dated July 2008). DPI recommends that all the recommended wastewater irrigation and management measures and water quality monitoring described in the EA and Annexure O are made mandatory in any approval of the project.</p> <p>DPI concurs with the proposed stormwater management measures recommended for the proposed development in Annexure P – Environmental Management Report by GHD P/L (dated March 2008) and Appendices. DPI recommends that all the recommended stormwater management measures described in the EA and Annexure P and Appendices are made mandatory in any approval of the project.</p>	<p>Shoalhaven Starches accept and agree with the comments raised by DPI and will seek to minimise harm to the natural environment. Shoalhaven Starches commit to implementing Best Management Practice with respect to erosion and sediment control.</p> <p>It is noted that DPI has <u>no</u> objection to proposed waste water irrigation and management measures recommended in the EA; and recommends these measures be incorporated into any approval. Shoalhaven Starches agrees with the imposition of this recommendation as conditions of consent.</p> <p>It is noted that DPI concurs with proposed stormwater management measures recommended in the EA; and their incorporation into any approval. Shoalhaven Starches agree with the imposition of this recommendation as a condition of consent.</p>

Department of Primary Industries (continued)

Submission Issues	Response
<p>DPI also concurs with the proposed rehabilitation of riparian areas by Shoalhaven Starches as outlined in Annexure I – Riparian Assessment by Coffey Environments P/L (dated May 2008). DPI recommends that all the recommendations in section 9 of this report are made mandatory in any approval of the project</p> <p>Based on the information provided, DPI (Fisheries) has no objections to approval being granted for the proposed development but recommends that any approval include the following conditions:</p> <ul style="list-style-type: none"> • All the proposed safeguards and measures to minimise environment impacts detailed in the Environmental Assessment Report by Cowman Stoddart P/L (dated August 2008), including the Statement of Commitments (section 8, Tables 40 to 60 inclusive) are fully implemented. • All the recommendations and proposed wastewater irrigation management, stormwater management, and erosion and sediment controls detailed in the EA – particularly those in Annexure P – Environmental Management Report by GHD P/L (dated March 2008) and Appendices, are fully implemented. • All the recommendations and proposed rehabilitation and planting of riparian areas detailed in the EA and Annexure I – Riparian Assessment by Coffey Environments P/L (dated May 2008), are fully implemented. 	<p>It is noted that DPI concurs with proposed measures for the rehabilitation of riparian areas as recommended by the EA; and their incorporation into any approval. Shoalhaven Starches agree with the imposition of this requirement as a condition of consent.</p> <p>Shoalhaven Starches agree with the imposition of this requirement as a condition in any approval.</p> <p>Shoalhaven Starches agree with the imposition of this requirement as a condition in any approval.</p> <p>Shoalhaven Starches agree with the imposition of this requirement as a condition in any approval.</p>
<p>Issues Related to Agriculture</p> <p>DPI places particular importance upon the need to maintain the sustainability of the soil and pasture on the irrigated paddocks of the environmental farm. We expect any approval to require implementation of Best Management Practice with respect to maintaining the sustainability of the soils and pasture. The implementation of such measures and continuous monitoring of the soil and pasture will mean that the paddocks of the environmental farm can continue to be irrigated sustainably into the future.</p>	<p>Shoalhaven Starches agree with the need to maintain the sustainability of soil and pasture on irrigated paddocks of the Environmental Farm; and commit to implementing Best Management Practice with respect to maintaining the sustainability of the soils and pasture.</p>

Department of Primary Industries (continued)

Submission Issues	Response
<p>DPI has no objection to the proposed management measures for soil and pasture management as well as measures to balance water on site and acknowledges that soil and pasture monitoring and periodic review of management techniques to manage soils and pastures will be important. It will also be important that the soil and pasture management measures in response to irrigation recommended in Annexures O (i) and (ii) - Agronomic Investigations by John Murtagh, Roy Lawrie and Glenys Lugg (dated July 2008) are made mandatory in any approval of the project.</p> <p>Based on the information provided, DPI (Agriculture) has no objections to approval being granted for the proposed development but recommends that any approval include the following conditions:</p> <ul style="list-style-type: none">• All the proposed management and monitoring measures proposed to manage the soils and pasture sustainably on the irrigated areas of the environmental farm detailed in the Environmental Assessment Report by Cowman Stoddart P/L (dated August 2008), including the Statement of Commitments (section 8, Tables 40 to 60 inclusive) are to be fully implemented.	<p>It is noted that DPI concurs with the soil and pasture management measures in response to irrigation as recommended in the EA; and their incorporation into any approval. Shoalhaven Starches agree with the imposition of this requirement as a condition of consent.</p> <p>Shoalhaven Starches agrees with the imposition of these requirements as a condition in any approval.</p>

Submission Issues	Response
<p><u>DEPARTMENT OF WATER & ENERGY</u></p> <p><u>Riparian Corridors</u></p> <p>Section 7.9.2 of the Environmental Assessment (EA) indicates that the existing core riparian zones and vegetated buffers along the Shoalhaven River, Bomaderry Creek, Broughton Creek and Abernethy's Creek <i>'do not meet the recommendations provided by DWE along the majority length of each riverbank'</i>. The DWE notes this comment is made in relation to applying the Riparian Corridor Management Study (RCMS) methodology to the watercourses at the site in accordance with the DWE response on the Director General Requirements for this major project.</p> <p>Prior to the former DIPNR developing and applying the RCMS methodology to watercourses in the Shoalhaven LGA to identify strategic riparian corridor objectives, the former DLWC had recommended for the subject site minimum average 20 m wide riparian setbacks be established along Bomaderry Creek, the Shoalhaven River and Abernethy's Creek.</p> <p>While DWE recommends the current proposal should aim to apply the more recent RCMS criteria, due to the existing development constraints at the site, DWE will accept a minimum average 20 m wide riparian corridor width along the watercourses at the site (measured from top of bank).</p> <p>Section 7.9.3 of the EA indicates that the proposed expansion is likely to involve the removal of vegetation where the proposed gas-fired co-generator has been sighted. Section 7.9.3 indicates the proposed gas-fired co-generator will be approximately within 20 m of Bomaderry Creek, the proposed chemical storage facility will be within 10 m of Abernethy's Creek and the Dryer No. 5 will be within 15 m of Abernethy's Creek (see Table 31, page 262). Applying the RCMS, Abernethy's Creek is a Category 2 watercourse and these widths do not meet the Category 2 criteria, however DWE will accept the proposed encroachments at these two locations provided other wider riparian areas are established elsewhere at the site to offset these encroachments and the average minimum, riparian corridor width is no less than 20 metres along either side of Abernethy's Creek at the site.</p>	<p>Shoalhaven Starches will generally seek to achieve DWE's recommendation to provide a minimum average 20 m wide riparian corridor along watercourses at the site.</p> <p>It is noted that DWE accepts the proposed encroachment to the recommended riparian zone setbacks as outlined in the RCMS, as detailed in the EA. DWE indicates that such acceptance is subject to wider riparian areas established elsewhere to offset these encroachments and the average minimum riparian corridor width is no less than 20 metres along either side of Abernethy's Creek at the site.</p> <p>Annexure C to this submission is a plan prepared by Allen Price & Associates depicting the average riparian corridor widths that can be provided within the site.</p> <p>Given that portion of the site to the east of Abernethy's Creek contains the original factory development, with existing buildings within close proximity of Abernethy's Creek it is not possible to provide riparian zones for this section of the factory site.</p> <p>As is evident from this plan however a minimum average riparian zone of 20 metres is able to be provided for the remainder of the site as follows:</p>

Department of Water & Energy (continued)

Submission Issues	Response
	<ul style="list-style-type: none"> • Western side of Abernethy's Creek – average riparian setback of 24.8 metres. • Western side of factory site to Shoalhaven River and Bomaderry Creek - 23.6 metres. • BOC plant site: 25 metres.
<p><u>Stock Exclusion</u></p> <p>Section 7.9.5 indicates current stock grazing distances along Broughton Creek range between 5 to 15 m from the mean high water mark. The EA recommends the stock exclusion zone be established from the top of bank to a minimum 15 m (page 266). Applying the RCMS, Broughton Creek is a Category 1 watercourse. The Department recommends, the stock exclusion area should aim to apply the RCMS criteria and be located outside the minimum 50 m wide riparian corridor but the average minimum setback for grazing should be no less than 20 metres from top of bank.</p> <p><u>Creek Crossing</u></p> <p>Section 5.8 of the EA refers to the need to cross Abernethy's Creek and the proposed construction of an overhead gantry linking the main factory site with the proposed additional plant at the DDGS site (Page 39).</p> <p>Section 7.7.11 indicates a permanent footbridge crossing across Abernethy's Creek will be designed and integrated with the proposed upgrading works associated with Access 2 (page 225).</p> <p>Any gantry or crossing of Abernethy's Creek is to be designed and constructed in accordance with the DWE Guidelines for controlled activities Watercourse crossings (February 2008) and should be designed so as to fulfil the riparian objectives.</p>	<p>In 2003 Shoalhaven Starches obtained funding (\$100,000) from the then Department of Land and Water Conservation which enabled the Company to carry out fencing that linked the existing fenced SEPP 14 wetland (No. 369) and provided for the entire frontage of Broughton Creek to be fenced, including electric fencing, a distance over 5 km. The depth to which the fencing is setback from Broughton Creek varies in response to elevation and the proximity of existing farm roadways. In some areas the depth is 100 metres; small anabranch swamps – 50 metres; and in some places 5 metres. The location and placement of fencelines has been chosen to best fit the topography and to ensure access around the farm is not hindered.</p> <p>Throughout the 5 year funding program the fence construction and alignment has been approved and audited by representatives of DLWC/ DPNR/ DNR/ SRCMA. Photograph points were set up by government staff to assist in evaluating this fencing. Clearing the existing fencing that has been established has been done so to satisfy relevant government agency requirements.</p> <p>Shoalhaven Starches agrees with this requirement.</p>

Department of Water & Energy (continued)

Submission Issues	Response
<p><u>Groundwater</u></p> <p>The proposal should consider the potential impacts on the groundwater system. Section 7.5.4 (Contamination) of the EA notes the possibility of intersecting groundwater as part of the construction works (Page 195). If groundwater is intersected this may require a licence from the Department.</p> <p>Section 7.4.7 of the EA refers to monitoring groundwater (page 179) and it is noted that monitoring is to be as per Annexure O (ii). Section 7.5.4 refers to the installation, development and sampling of one groundwater well. Please note, all proposed groundwater works including bores for the purpose of investigation, extraction, dewatering, testing or monitoring must be identified and approval obtained from DWE under Part V of the <i>Water Act 1912</i> prior to their installation. An application can be obtained by contacting Wayne Ryan on telephone number 4429 4442 at the Department's Nowra office.</p>	<p>Shoalhaven Starches accepts that groundwater works including bores for investigation or monitoring purposes must be approved by DWE pursuant to Part V of the Water Act 1912 prior to installation.</p>
<p><u>Recommended Conditions of Approval</u></p> <ol style="list-style-type: none"> 1. The proponent must ensure that all works and disturbance areas associated with the proposal do not compromise the riparian zones in any way. 2. Riparian zones consisting of local native plant species shall be established and maintained in and adjacent to the watercourses on the site, for their entirety within the site. The extent of the riparian zones is to be measured horizontally landward from the top of bank of the watercourses, and where possible meet the Riparian Corridor Management Study (RCMS) criteria but are to be no less than a minimum average width of 20 metres either side of the watercourses. Note the RCMS criteria is: <ul style="list-style-type: none"> • 50 m along the Shoalhaven River, • 50 m along Bomaderry Creek, • 50 m along Broughton Creek, • 30 m along Abernethy's Creek. 3. A VMP for Site rehabilitation that demonstrates protection of any remnant local native riparian vegetation at the sites and restore any riparian zones to a state that is reasonably representative of the natural ecotone of the protected waters system, to achieve sound naturalised watercourse and long term riparian area stabilisation and management by the enhancement/emulation of the native vegetation communities of the subject area is to be prepared. 	<p>Shoalhaven Starches agrees with this requirement subject to the following comments.</p> <p>As evident from Annexure C, Shoalhaven Starches are able to comply with a riparian zone with a minimum average width of 20 metres, with the exception of the existing factory development located on the south side of Bolong Road and to the east of Abernethy's Creek.</p> <p>Shoalhaven Starches agrees with this requirement.</p>

Department of Water & Energy (continued)

Submission Issues	Response
4. Seed and propagule sources are to be from local botanical provenance (regarded as from as close as possible and from the same general habitat (same soil type, distance from watercourse, exposure etc).	Shoalhaven Starches agrees with this requirement.
5. The riparian zones must be maintained for a period of at least five (5) years after final planting or where other revegetation methods are used, five years after plants are at least of tubestock size and are at the densities required by these conditions and with species richness as described in the VMP, and five (5) years minimum for those areas required for access and maintenance relating to any WP.	Shoalhaven Starches agrees with this requirement.
6. The riparian zones must be monitored over a period of 5 years commencing after final planting and will include weed control monitoring and the establishment of locally indigenous riparian vegetation (comprising both natural regeneration and/or planting).	Shoalhaven Starches agrees with this requirement.
7. The proponent must ensure that all works and activities within the site do not compromise the implementation of the VMP in any way.	Shoalhaven Starches agrees with this requirement.
8. A permanent physical barrier, (such as bollards, logs, a fence, pathway, road etc), to prevent inadvertent damage to riparian zones is to be placed at the landward extent of the riparian zones.	Shoalhaven Starches agrees with this requirement.
9. Any crossing is to be designed and constructed in accordance with the DWE Guidelines for controlled activities Watercourse crossings (February 2008).	Shoalhaven Starches agrees with this requirement.
10. Pedestrian pathway and their associated disturbed areas (with the exception of branch pathways) are not to be located in any riparian zone.	Shoalhaven Starches agrees with this requirement.
11. Erosion and sediment control measures are to be implemented prior to any works commencing at the site and must be maintained for as long as necessary after the completion of works, to prevent sediment and dirty water entering the watercourse. These control measures are to follow relevant management practices as outlined in the Landcom manual <i>"Managing Urban Stormwater: Soils and Construction – Volume 1"</i> (4 th Ed., 2004) - the <i>"Blue Book"</i> .	Shoalhaven Starches agrees with this requirement.

<i>Submission Issues</i>	<i>Response</i>
<p><u>ROADS AND TRAFFIC AUTHORITY</u></p> <ul style="list-style-type: none"> - The overall site plan showing traffic arrangements for the site (Figure 27) shows channellised right turns together with left turn lanes at all 4 junctions to the plant. Given only one junction currently has a channellised right turn, I assume the developer is proposing to upgrade the other junctions to provide channellised right turns and left turn lanes. The plan appears to be in conflict with statements in the Environmental Assessment Report which talk about Type A treatments which are a significantly lower standard treatment. - The RTA has concerns with the proposed northern access to the packaging plant, which is proposed as one way. The RTA has concerns the ability to restrict right in movements to this access and the potential conflicts with the access immediately east of the drain. The junction will also provide conflicts for pedestrians from the proposed overbridge. The RTA considers access should be via Railway Street. - Concept designs of all treatments showing property boundaries and lane widths should be provided to allow the RTA to make an informed assessment and ensure that any conditions are achievable. Street lighting should be provided in accordance with Australian Standards. 	<p>Figure 27 details the proposed road upgrading works to intersections, as proposed by the EA.</p> <p>Annexure D to this submission provides more detailed concept plans demonstrating how the proposed Bolong Road access to the Packing Plant will be able to be integrated with other works located along Bolong Road. These plans have been submitted separately to the RTA and Council for comments. At the time of preparing this response no formal response has been received.</p>

Submission Issues	Response
SHOALHAVEN CITY COUNCIL	
<p><u>Land Use Permissibility under Shoalhaven LEP 1985</u></p> <p>The Environmental Assessment Report includes various references to different portions of the site in relation to permissibility under Shoalhaven LEP, specifically the portions of the site that are not zoned 4(e) Restricted Development. Further to these references, the specific proposed works are considered ancillary to approved land uses on the site.</p>	<p>It is noted that Shoalhaven City Council, accept the planning provisions affecting the site, permit the proposed development subject to consent.</p>
<p><u>State Environmental Planning Policy No. 62 – Sustainable Aquaculture</u></p> <p>The development is located within the floodplain and adjacent to the Shoalhaven River. It is in proximity to established oyster growing areas in the Shoalhaven River where considerations of impact upon the aquaculture and oyster growing in the river is required. In general the proponent has identified the measures to prevent runoff of polluted waters to the river and that there will be measures during and following the development works that will minimise or prevent impacts upon the river.</p> <p>However, the statement indicates that there is an option to discharge a by-product, retentate to the river. This is also referred to in the Water / Sewer comments, below. This together with potential polluted water runoff may have an adverse impact downstream. Section 6.3 of the proponent's Environmental Assessment does not address the requirements of SEPP No. 62.</p> <p><u>Recommendation</u></p> <p><i>That the proponent address the requirements of SEPP No 62 – Sustainable Aquaculture, and this may include conclusions that there will be no provisions for discharge of pollutants to the river system.</i></p>	<p>Pursuant to Clause 15B of SEPP 62, before determining a development application, a consent authority:</p> <ul style="list-style-type: none"> (a) <i>must consider whether, because of its nature and location, the development may have an adverse effect on oyster aquaculture development or a priority oyster aquaculture area, and</i> (b) <i>if it suspects that the development may have that effect, must give notice of the application to the Director-General of the Department of Primary Industries.</i> <p>The EA is quite clear that the option of discharging of retentate to the river is <u>not</u> proposed (Section 7.3.2); and that 100% retentate will be treated and spray irrigated onto the Company's Environmental Farm (Statement of Commitments, Section 8.3.10, Table 49).</p> <p>Furthermore, Section 7.5.2.1 of the EA addresses stormwater and soil and water management associated with this proposal. These measures are further addressed in the Statement of Commitments in Section 8.3.3 (Table 41).</p> <p>Overall it is considered the proposal will not have an adverse effect on oyster aquaculture development within the Shoalhaven River.</p> <p>Furthermore the EA was referred to the Department of Primary Industries (Fisheries). DPI raised no objections to the proposed wastewater irrigation and management measures; or the proposed stormwater management measures recommended by the EA.</p>

Shoalhaven City Council (continued)

Submission Issues	Response
<p><u>Water/Sewer</u></p> <p>It is noted that there is no direct proposal to discharge any liquid waste to either Council's reticulated sewer or to Council's Reclaimed Water Management Scheme (REMS), and as a result the provisions noted below are based on nil discharge of wastewater to Council's systems. It is noted, however, discharge to the Shoalhaven River has been highlighted in the provided 'Waste Management Report'-(Appendix L page 11) dated May 2008 as an option for retentate to be discharged to Council's system. Any additional discharge to the Shoalhaven River will require the applicant to obtain approval from DECC in the future.</p>	<p>Shoalhaven Starches raise no objections to the imposition of this condition in any approval. In doing so however Shoalhaven Starches point out, and as indicated in Section 7.5.1 of the EA, the proposal will result in a reduction in the demand from the factory on the drinking water from the Council's water supply. As outlined above, the proposal does not seek to discharge retentate to the Shoalhaven River, and this is clearly stated in the EA.</p>
<p><i>Recommendation</i></p> <p><i>If granted consent, it will be necessary for the operational consent to include a standard condition requiring the applicant to obtain a certificate of compliance as follows:</i></p> <p><i>“Water and/or Sewer Contributions</i></p> <p>(a) <i>The applicant is to apply under Section 305 of Division 5 of Part 2 of Chapter 6 of the Water Management Act 2000 for a Certificate of Compliance from Shoalhaven Water.</i></p> <p>(b) <i>Relevant conditions/requirements, including monetary contributions (where applicable) under the Water Management Act 2000, can be provided under Section 306 of Division 5 of Part 2 of Chapter 6 of the Water Management Act 2000. A Development Application Notice issued by Shoalhaven Water will outline all conditions/requirements to be adhered to.</i></p> <p>(c) <i>“A Certificate of Compliance (CC) under Section 307 of Division 5 of Part 2 of Chapter 6 of the Water Management Act 2000 must be obtained to verify that all necessary requirements for matters relating to water supply and sewerage (where applicable) for the development have been made with Shoalhaven Water. A Certificate of Compliance shall be obtained from Shoalhaven Water after satisfactory compliance with all conditions as listed on the Development Application Notice and prior to the lodgement of an application for the issue of an Occupation Certificate, Subdivision Certificate or Caravan Park Approval, as the case may be. A copy of the Certificate of Compliance must accompany the application for an Occupation Certificate, Subdivision Certificate or Caravan Park Approval, as the case may be.</i></p>	<p>Shoalhaven Starches agree with this requirement being imposed as a condition of consent.</p>

Shoalhaven City Council (continued)

Submission Issues	Response
<p><i>In the event that development is to be completed in approved stages or application is subsequently made for staging of the development, separate Compliance Certificates shall be obtained for each stage of the development.</i></p> <p><i>Where a Construction Certificate is required all conditions listed on the Shoalhaven Water Development Application Notice under the heading "PRIOR TO OCCUPATION/OPERATIONAL CONSENT" must be complied with and accepted by Shoalhaven Water. The authority issuing the Construction Certificate for the development shall obtain written approval from Shoalhaven Water allowing a Construction Certificate to be issued. This shall also apply to approved staged developments."</i></p>	<p>Refer above.</p>
<p><u>Stormwater Quality</u></p> <p>The Environmental Assessment identifies there will be significant site works that may result in soil erosion and runoff from the site. It is considered appropriate to impose conditions to ensure adequate controls to prevent offsite soil erosion and pollutants adversely affecting the surrounding waterways. The measures are included in the applicant's commitments.</p>	<p>The Statement of Commitments (Section 8.3.3) details soil and water management measures for the proposal.</p>
<p><u>Groundwater Contamination and Acid Sulphate Soils</u></p> <p>The Environmental Assessment and the Appendix J – Environmental Site Assessment by Coffey Environments Pty Ltd, point to the potential to disturb areas affected by low to medium acid sulphate soils due to building and site works on the existing developed sites as well as the new works associated with the packaging plant works. Acid Sulphate Soils are present on the site along with potential for the creation of further ASS on the site as a result of exposure and oxidation.</p> <p>The report identifies some levels of groundwater contamination although the source has not been defined. The report states that should levels above acceptable standards are found during site and other works that an additional study should be undertaken.</p> <p><u>Recommendation</u></p> <p>In addition to the applicants "commitments" The following conditions be imposed:</p>	<p>Shoalhaven Starches agrees with the imposition of this requirement as a condition of any approval.</p>

Shoalhaven City Council (continued)

Submission Issues	Response
<p><i>Imported Soils</i></p> <p><i>Any soils imported to the site during site work will require validation by a suitably qualified and experienced consultant to confirm that they meet the relevant soil criteria for the proposed land use. Validation of imported soil shall be submitted in the form of a report prepared by a suitably qualified and experienced consultant in accordance with NSW EPA Guidelines for Consultants Reporting on Contaminated Sites at the completion of the relevant earthworks.</i></p> <p><i>Removal of soil from the site</i></p> <p><i>All soil and/or fill removed from the site shall be classified in accordance with the NSW EPA Environmental Guidelines: Assessment, Classification & Management of Liquid and Non-Liquid Wastes prior to removal from the site. All soil and/or fill removed from the site shall be disposed of at an appropriate licensed waste depot or other site approved to accept soil and/or fill. Copies of receipts confirming disposal at a licensed waste depot or other approved site shall be retained and provided on demand with the Validation report.</i></p>	<p>Shoalhaven Starches agrees with the imposition of this requirement as a condition of consent in any approval.</p> <p>Shoalhaven Starches agrees with the imposition of this requirement as a condition of consent.</p>
<p><u>Odour Controls</u></p> <p>The Environmental Assessment identifies the recommendations of the audit conducted following the approval of the Flour Mill project and other measures to minimise odour complaints will be incorporated into the works that are the subject of the current application. The development will be carried out in stages and Council recognises that there are issues associated with maintaining production while carrying out remediation works. The applicant identifies that works will be staged with full compliance at the later phase of these extensive works.</p> <p>It is considered appropriate that there be a Construction Environmental Management Plan that will ensure that the works associated with achieving odour control are commissioned at the earliest stages possible. This is incorporated into the applicant's commitments.</p>	<p>The Statement of Commitments within the EA, Section 8.3.7 and Table 46, clearly outline Shoalhaven Starches' commitment to the implementation of odour control measures associated with this proposal.</p> <p>The Statement of Commitments within the EA, Section 8.7.1 clearly outlines Shoalhaven Starches commitment to the preparation of a Construction Environmental Management Plan.</p>

Shoalhaven City Council (continued)

Submission Issues	Response
<p><u>Flora / Fauna – Threatened Species</u></p> <p>Council has provided comments at the time of reviewing the Draft Environmental Assessment. There has been discussion between Council and the proponent's consultant prior to and during the exhibition of the Environmental Assessment.</p> <p>The Council's comments have been and are reiterated as follows:</p> <p>(a) Threatened Species – Green and Golden Bell Frog</p> <p><u>Background</u></p> <p>Following the submission of comments on the Draft Environmental Assessment Report the applicant's environmental consultant (Dr Kevin Mills) telephoned Council's Threatened Species Officer to discuss comments relating to concerns re the lack of targeted surveys for Green & Golden Bell Frogs (GGBF) on the site. Dr Mills agreed that GGBF do turn up in the most unexpected places. Dr Mills stated he would report back to the applicant that Council stood by its comments made at Draft EA stage.</p>	
<p><u>Review of the Flora and Fauna Assessment by Kevin Mills & Associates (reference: February 2008 07/47/2)</u></p> <p>The Flora and Fauna Assessment Report for the Environmental Assessment Report is the same as was submitted with the Draft Environmental Assessment Report. Council comments for the Draft are still applicable for the submitted Environmental Assessment Report. That is; Council has concerns that while KMA has "carefully considered" it has dismissed the potential for Green & Golden Bell Frog (GGBF) to occur on the site without having conducted targeted surveys considering;</p> <ul style="list-style-type: none"> • KMA has described "low-lying areas on the environmental farm periodically holding freshwater" and, • Acknowledged the species is known to occur in the locality. <p>The KMA report also describes the habitat requirements of GGBF as "still, shallow and unpolluted ponds and wetlands, ephemeral and permanent, containing reeds". These conditions are the type found within the environmental farm site. However, KMA states "the species is not likely to occur on this site because there is no suitable habitat" yet acknowledges the presence of "low-lying areas on the environmental farm periodically holding freshwater" and "wetland habitat for a wide range of waterbirds" on the environmental farm. KMA has listed one amphibian (<i>Crinia signifera</i>) as occurring on the site though no details of where and when it was detected are provided.</p>	<p>Annexure E to this submission is a Supplementary Flora and Fauna Assessment carried out by Kevin Mills & Associates including a targeted survey for the Green & Golden Bell Frog.</p>

Shoalhaven City Council (continued)

Submission Issues	Response
<p>Shoalhaven City Council believes targeted surveys for GGBF are required on the site before an assessment of impacts can be carried out because;</p> <ul style="list-style-type: none"> • The species is known to occur in a variety of habitats on the Shoalhaven River floodplain and localities. These habitats include areas that have been highly modified or degraded such as The Vineyards Golf Course (now closed) and urban stormwater drains, both on Worrigee Road Worrigee. • The NSW Department of Environment and Climate Change (DECC) describe some GGBF sites, particularly in the Greater Sydney region, as occurring in highly disturbed areas (DECC threatened species profile). • GGBF are classified as Endangered (Schedule 1 of the NSW Threatened Species Conservation Act 1995) in NSW while at a national level, the species is listed as Vulnerable (Schedule 1 Part 2 of the Environment Protection and Biodiversity Conservation Act 1999) with the populations known to be in decline (DECC threatened species profile). <p>Recommendation <i>Council recommends the applicant engage a suitably qualified environmental consultant to conduct targeted surveys for GGBF in appropriate conditions before the environmental impact of the proposal is assessed. DECC has produced assessment guidelines which contain useful survey techniques and information about habitats.</i></p>	<p>Annexure E is a Supplementary Flora & Fauna Assessment prepared by Kevin Mills & Associates. This report presents the results of targeted surveys for the Green & Golden Bell Frog. No Green & Golden Bell Frogs were identified by Kevin Mills & Associates as a result of this targeted survey of the development site.</p> <p>Shoalhaven Starches have complied with this recommendation (Annexure E to this submission).</p>
<p>(b) Riparian Vegetation <u>Review of the Riparian Assessment Report by Coffey Environments (reference: ENVIUNAN00111 AB-R01 16 April 2008)</u> Council's comments in relation to the Riparian Assessment Report submitted with the Draft Environmental Assessment Report are still applicable. The same report has been submitted with the current application. The comments are reproduced below.</p>	<p>Refer next page.</p>

Shoalhaven City Council (continued)

Submission Issues	Response
<p>Coffey Environments describe the site as having had much of the remnant vegetation “removed prior to the development of the factory and farm for agricultural purposes” with the remaining riparian vegetation falling well short of the Core Riparian Zone (CRZ) and Vegetated Buffer recommended by the Dept. of Water and Environment (DWE). “Of 5.5km of foreshore on the property, 483.5m meets the recommended Core Riparian Zone” (Coffey Environments, 2008).</p> <p>Coffey Environments describe the proposed expansion as involving “the removal of a small proportion of riparian vegetation adjacent to Bomaderry Creek, approximately 20m from the stream bank”, with weed infestations “likely to increase in intensity and spread to new areas without appropriate controls”. Coffey Environments considered “that this would occur regardless of the proposed expansion due to the poor condition of existing native vegetation and prevalence of weed species throughout the site.”</p> <p>Coffey Environments “recommendations for revegetation and enhancement works to improve bank stability” because “the foreshore of Shoalhaven River will continue to recede regardless of revegetation works; however, additional vegetative cover and deep binding roots will slow the rate of recession. Bank stability of Bomaderry Creek, Abernethy’s Creek and Broughton Creek is expected to improve with vegetation enhancement as fluvial scour is not as severe. Effective weed management will also be necessary to ensure native species can successfully establish. Finally it is recommended that Manildra develop and implement a Vegetation Management Plan that outlines the strategic objectives and site specific measures.” The proposal provides an opportunity to ensure much needed riparian zone works are carried out around the Shoalhaven Starches site.</p> <p>Recommendation</p> <p><i>The recommendations of Coffey Environments be converted into conditions of consent with a contract with a suitably qualified “bush regeneration”/riparian restoration company finalised prior to any approval or commencement of work. The Vegetation Management Plan (VMP) and restoration works should be fully costed with Shoalhaven Starches committed to fund the work prior to an approval.</i></p>	<p>Shoalhaven Starches agrees with the recommendations of Coffey Environments being included as conditions of consent (refer Statement of Commitments, Section 8.3.13, Table 52; Section 8.3.14, Table 53; and Section 8.3.16 and including Table 55).</p>

Shoalhaven City Council (continued)

Submission Issues	Response
<p><i>The final riparian restoration area/VMP should be delayed until the outcomes of the required targeted Green and Golden Bell Frog survey results and assessment are known in case the species has been considered further on the site.</i></p>	<p>Refer Annexure E to this submission.</p>
<p><u>Building Construction Works</u></p> <p>There are numerous building structures proposed by the development. There will be multiple construction classifications under the Building Code of Australia. A Construction Certificate is required for the proposed building structures in accordance with classifications under the Building code of Australia. In general the majority of structures will be a Class 8 structure.</p>	<p>Shoalhaven Starches acknowledges a Construction Certificate is required prior to construction works commencing.</p>
<p><u>Waste Management</u></p> <p>The proponent refers to the existing Waste Management System that operates for the site and an intention to update this as the development proceeds. This will form part of an overall intention of an Environmental Management System (EMS). Council considers that this intention should be included as a required condition to ensure that there is appropriate separation and disposal of all product that is not reusable. The applicant's commitments include these measures.</p>	<p>Shoalhaven Starches agrees with the incorporation of this requirement as a condition of consent (refer Statement of Commitments, Section 8.3.9, Table 48).</p>
<p><u>Flooding</u></p> <p>The increase in water level, extent of inundation and velocity of flood waters (excluding climate change) based upon the cumulative impact of all construction works since 1990 is considered insignificant.</p> <p>However, based upon the Climate Change addendum report submitted with the application, the increase in rainfall intensity would result in 0.6 metre increase in flood levels and this is considered a significant concern.</p> <p>The hazard early warning systems that will be applied to the Shoalhaven Starches operations and for their personnel should be extended to ensure that private landowners identified in the Hanigans Lane area are also informed through SES systems that will operate during times when flooding events occur.</p>	<p>This issue was referred to Webb McKeown & Associates who indicate the following:</p> <p><i>“Climate Change will affect the livelihood of us all. The degree of affectation depends on what results from climate change. Unfortunately there is no definitive prediction regarding the effect on design rainfalls. WMAwater have examined a range of possible scenarios that MAY occur by the year 2090. However the actual change could be less or more. Based on the NSW Government’s November 2007 guidelines on Climate Change an “indicative” increase for the “southern rivers” is +7% by the year 2030 and +5% by the year 2070. The 30% increase relates to the Lachlan & Murray systems (though a decrease in rainfall is also possible). Based on the “best estimate” available at this time a realistic maximum increase for the Shoalhaven is +10% (equates to a 0.2 m increase in flood levels),</i></p>

Shoalhaven City Council

Submission Issues	Response
	<p><i>The effect of climate change will be gradual over say a 20 year period (+7% by the year 2030). Manildra will therefore have the opportunity to address the implications for flooding as climate change occurs. Possibly they may choose to adapt their plant and level of flood risk accordingly. Alternatively they may choose to ignore the increase in flood level as the “life” of their motors, buildings etc. is probably less than 20 years. If damaged they may then choose to replace them at a higher level taking into account climate change increases.”</i></p>
<p><u>TRAFFIC ISSUES</u></p> <p><u>Pedestrian Footbridge southern side of Bolong Road (over Abernethy's Creek)</u></p> <p>Council agrees that there is outstanding condition for pedestrian footbridge on the southern side of Bolong Road across Abernethy's drain to prevent Shoalhaven Starches staff and contractors from the dangerous practice of walking along the edge of Bolong Road in this area.</p> <p>However, Council <u>does not</u> agree that the recently completed pedestrian footbridge satisfies this condition.</p> <p>Shoalhaven Starches were made aware at the time the work was being undertaken (and were reminded again in our meeting 11th April) that the approval issued by Council for the current structure <u>was interim approval only</u> to satisfy the immediate safety concerns of Workcover NSW, and Council <u>does not</u> accept that the design or location of the structure is appropriate, and currently await a revised design proposal by Shoalhaven Starches to address the outstanding consent condition for a more permanent solution that meets appropriate standards and resolves location and land ownership issues.</p> <p>The design of the pedestrian footbridge facility must be integrated with all other aspects of design in this vicinity (including design of the upgrade of Access point 2, and design of works associated with the packaging plant development to the north of Bolong Road including design of the proposed overhead transfer bridge, design of a pedestrian refuge to facilitate safe pedestrian crossings of Bolong Road which will increase as consequence of the development, and design of proposal for vehicle access from Bolong Road which Council has indicated it would not support in absence of detailed designs being undertaken to demonstrate that the access could be constructed to RTA road design standards).</p>	<p>This issue has been the subject of further consultation with Council staff. Figure 27 clearly outlines how the existing pedestrian footbridge can be integrated with the proposed upgrading works to the intersections. In order to further satisfy Council it is proposed to dedicate that part of Shoalhaven Starches' land upon which the bridge is located (to the east of Abernethy's Creek) to Council as road reserve (to ensure bridge is located entirely upon the road reserve).</p> <p>It is understood that Council and the RTA will be preparing a joint submission in connection with this (and other traffic matters). At the time of preparing this submission, this joint submission was not available.</p>

Shoalhaven City Council (continued)

Submission Issues	Response
<p><u>Access Point 2 (ie Central access)</u></p> <p>Council agrees that there is outstanding condition for right turn lane to be constructed to make safe the central access (access point 2).</p> <p>Contrary to advice by Shoalhaven Starches, Council has no records that a design had previously been approved by Council or RTA.</p> <p>The design referred to is included in the Appendix A of Traffic Impact Assessment by CSC, however the design and details in that drawing are not readable.</p> <p>However having viewed a copy of the design at our meeting with Shoalhaven Starches staff on 11th April, we note that the design shows the provision of a fully protected right turn lane (or CHR treatment) with guardrail both sides of Bolong Road.</p> <p>Accordingly, Council agrees in principle that the design would satisfy the outstanding condition however only subject to:</p> <ol style="list-style-type: none"> 1) bringing the design up to current standards for type C or CHR right turn treatment as per RTA Road Design Guidelines including provision of guardrail on both sides of Bolong Road 2) resolution of the pedestrian bridge issues on south side of Bolong Road including construction of a permanent bridge design as part of the intersection upgrade project 3) The design of the right turn lane must be integrated with all other aspects of design in this vicinity (including design of the pedestrian footbridge facility across Abernethy's creek, and design of works associated with the packaging plant development to the north of Bolong Road including design of the proposed overhead transfer bridge, design of a pedestrian refuge to facilitate safe pedestrian crossings of Bolong Road which will increase as consequence of the development, and design of proposal for vehicle access from Bolong Road which Council has indicated it would not support in absence of detailed designs being undertaken to demonstrate that the access could be constructed to RTA road design standards). 	<p>Figure 27 in the EA provides conceptual details of upgrading works to the intersections to the site. Annexure D to this submission includes a further detailed plan illustrating proposed intersection upgrade works along Bolong Road. This plan has been submitted to both RTA and Council for review. At the time of preparing this submission, the joint submission prepared by Council and the RTA on these traffic matters was not available.</p> <p>Shoalhaven Starches agrees to the imposition of this requirement as a condition of consent.</p>

Shoalhaven City Council (continued)

Submission Issues	Response
<p>4) The pedestrian refuge is to be located to the west of Abernethy's drain (ideally located within the painted island area associated with the right turn lane design). footpath connections are to be provided to link the current Shoalhaven Starches offices and plant to the proposed new packaging and warehouse plant on the north side of Bolong Road. This includes ensuring footpath is constructed along the full frontage of Shoalhaven Starches operations on south side Bolong Road ensuring path connections linking all plant and offices to the pedestrian refuge.</p> <p>5) submission of a design to the satisfaction of Council and RTA.</p> <p>With respect to point 3) above, Council has previously advised the Department of Planning that in the absence of a master plan showing how all aspects of design (described in 3) above) can be addressed in accordance with relevant standards including RTA design guidelines and relevant RTA technical directions, that Council can not provide approval in principle for the proposed vehicle access from Bolong Road, as Council can not be satisfied at this time that the access can be provided to a safe standard in accordance with guidelines.</p> <p>Accordingly, In the absence of master plan showing how all of the projects in road reserve can be integrated to safe standard, Council has advised Department of Planning that Council's preference is for all vehicle access to / from the new packaging and warehouse plant to be from Railway Street, with footpath connections only to be provided from Bolong Road as discussed above.</p>	<p>Figure 27 provides a conceptual masterplan showing how access upgrading works will be undertaken.</p> <p>Annexure D to this submission provides further details in terms of access from Bolong Road to the proposed Packing Plant site. This plan has been submitted to both the RTA and Council for review. At the time of preparing this submission, the joint submission prepared by the RTA and Council was not available.</p>
<p><u>Access Point 3 (ie. western most access)</u></p> <p>Council agrees that the current state of Access Point 3 does not address outstanding condition relating to this access and that there is safety and maintenance related issues associated with its current form.</p> <p>Council agrees in principle with Shoalhaven Starches proposal to seal the northern and southern sides of the junction including construction of a concrete driveway into the site would satisfy the outstanding condition subject to:</p> <p>1) submission of a design to the satisfaction of Council and RTA</p>	<p>Shoalhaven Starches raises no objection to this requirement being imposed as a condition of consent.</p>

Shoalhaven City Council (continued)

Submission Issues	Response
<p><u>Railway Crossing</u></p> <p>Council has reviewed the RTA warrants for rail level crossings and does not agree that the RTA warrants have not been met for the installation of boom gates on Bolong Road (a classified main road). If this rail crossing was in public ownership, Council considers that the installation of boom gates would be a high priority, and Council notes other significantly lower traffic volume roads that have railway level crossings are currently being programmed by the Railcorp Level Crossing Unit for upgrade to boom gates.</p> <p>Council notes that Shoalhaven Starches believe that boom gates are not required, and the reasons put forward, however the requirement for installation of boom gates is a legal consent condition, and accordingly to amend or remove the condition would require Shoalhaven Starches to make application to Council under Section 96 of the Environmental Planning and Assessment Act.</p> <p>That said, to review a Section 96 application, Council would require sufficient justification that the upgrade to boom gates was not required, or that an alternative form of crossing treatment or management plan may be more appropriate.</p> <p>Whilst the current rail level crossing treatment may meets Australian Standards in terms of display and location of approach warning signage etc, Council does not believe the warnings signage in place is appropriate for night time rail crossings, and does not believe the current operation of the crossing includes adequate safety management systems as required under the OH&S Act 2000 and Rail Safety Act 2002, in the absence of an approved traffic management plan prepared in accordance with Australian Standard AS1742.3 and current RTA Traffic Control at Worksites Manual (to the satisfaction of Council and RTA) to ensure the safety of Shoalhaven Starches staff in the road reserve at the time of rail crossing, and immediately prior to and after rail crossing.</p> <p>Of particular concern is statement from Shoalhaven Starches that the trains are “escorted” across the Bolong Road crossing. This is only appropriate if undertaken in accordance with an approved traffic management plan (approved by Council and RTA), and if implemented in accordance with an approved plan by a person wearing appropriate PPE and with current RTA accreditation for implementation of traffic control plans.</p>	<p>Development Consent W91/00760 was issued by the Minister for Planning on the 19th May 1994 for the Stage Three Expansion of the Ethanol Plan. This consent included Condition 19 which reads:</p> <p><i>“19. Prior to commencement of operation of any additional rail operations serving the proposal, level crossings on Bolong Road and Railway Street to be upgraded at applicant’s expense in accordance with advice from Council, RTA and Freight Rail and according to the RTA document “RTA Signs and Markings (Level Crossings)”. Design to be submitted for approval by SRA.”</i></p> <p>This is the condition to which Council refers. The condition does not strictly require boom gates to be installed.</p> <p>Shoalhaven Starches however undertake and commit to accepting and complying with this condition of consent being imposed in relation to this proposal.</p> <p>Compliance with this original condition should satisfy Council’s requirements in this regard.</p>

Shoalhaven City Council (continued)

Submission Issues	Response
<p>Accordingly, Council is prepared to accept a section 96 application to remove condition of boom gates, and replace with suitable alternative condition, subject to the following being completed prior to making the application;</p> <ol style="list-style-type: none"> 1) the Australian Level Crossing Assessment Model (ALCAM) is to be run by the NSW Rail Level Crossing Unit to determine the level of risk of the current rail level crossing operations and whether in the opinion of the NSW Rail Level Crossing Unit the level of risk requires intervention to address safety issues (in accordance with NSW guidelines). To that extent, the NSW Rail Level Crossing Unit has advised Council that arrangements can be made to run the model following written request from the RTA to Rail Level Crossing Unit. 2) the outcome of 1) above is known and any follow up safety issues are agreed to by Shoalhaven Starches, The RTA, and Council, and the outcome as agreed by Shoalhaven Starches, The RTA, and Council is reflected in the proposed amendments to the consent conditions, be it upgrade to boom gates, or other alternative condition to be provided by Shoalhaven Starches to address safety issues associated with the rail level crossing 3) to address safety of motorists and of Shoalhaven Starches staff working in the road reserve immediately prior to, during, and after rail crossing operations, and to improve safety for motorists, Shoalhaven Starches are to make submission of an approved traffic management plan including traffic control plan prepared by a suitably qualified person that has been prepared in accordance with Australian Standard AS1742.3 and current RTA Traffic Control at Worksites Manual, to the satisfaction of Council and RTA. The traffic management plan must include requirement for advance warning systems to be upgraded to meet standards for day and night time crossing operations and must include those control aspects noted by Shoalhaven Starches in their letter dated 10th April 2008 ie including: <ul style="list-style-type: none"> * trains approach the crossing and stop * all aspects of the approved traffic management plan are in place * the crossings lights and bells are then activated * locomotives sound their horn and are then escorted across the crossing 	<p>Refer above.</p>

Shoalhaven City Council (continued)

Submission Issues	Response
<p>* locomotives proceed only when safe to do so and train speed is at walking pace (ie less than 4km/hr)</p> <p>4) written confirmation from the Independent Transport Safety and Reliability Regulator (ITSRR) that ITSRR that the outcomes of 1),2), and 3) above are accepted and will be enforced as part of Shoalhaven Starches safety management system requirement under Rail Safety Act 2002.</p> <p>When the outcomes of 1) - 4) above are known, Council will be in an informed position to determine whether the existing condition must be retained, or alternatively whether Council can consider an application under Section 96 of the Environmental Planning and Assessment Act to remove or amend the current condition relating to requirement of Shoalhaven Starches to upgrade the rail level crossing to provide boom gates.</p> <p>All costs associated with developing and implementation of plans including the costs of ensuring advanced warning systems are brought up to current standards for both day and time crossing operations, are at the cost of the applicant.</p>	<p>Refer above.</p>
<p><u>Hannigans Lane</u></p> <p>Council agrees that the current state of access points along Hanigans Lane do not address conditions requiring provision of safe intersection sight distance and that there are safety issues associated with current form due to obstruction of sight distance by vegetation.</p> <p>Council agrees with the proposal by Shoalhaven Starches to undertake vegetation removal subject to;</p> <p>1) safe sight distance being provided to / from the access points in accordance with Australian Standards and commitment to on-going vegetation maintenance to ensure safe sight distance can be provided at all times from the access points.</p>	<p>Shoalhaven Starches agrees with this requirement being imposed as a condition of any approval.</p>

Shoalhaven City Council (continued)

Submission Issues	Response
<p><u>Packaging Plant Access</u></p> <p>As discussed above, in the absence of master plan design showing how the proposed access could be provided to safe standard to satisfaction of Council and RTA in conjunction with all other works required in same general vicinity (ie pedestrian bridge across Abernethy's Creek, upgrade to right turn lane at Access 2, proposed overhead transfer bridge structure, pedestrian refuge, etc), Council can not accept at this time that the proposed packaging plant access can be accommodated on Bolong Road to safe standard, and accordingly in the absence of the required information at this time, Council maintains their recommendation that all access to the proposed new development be from Railway Street.</p>	<p>Annexure D provides further plan details demonstrating how access to the Packing Plan can be provided to a safe standard. At the time of preparing this submission, the joint submission prepared by the RTA and Council was not available.</p>
<p><u>Heavy Vehicles through Bomaderry</u></p> <p>Council notes position of Shoalhaven Starches in relation to heavy vehicle impacts in Bomaderry. This has been a difficult issue for Council over the years as enforcement of any load limits would be problematic given the mix of residential and industrial uses.</p> <p>In terms of improved amenity and safety in residential areas and around the schools, Council's main concern relates to heavy vehicle impacts and speeds during school peak periods and at night time.</p> <p>Council accepts that noise impact study is appropriate however this must address the cumulative impacts of the development, not specifically each incremental stage of development.</p> <p>Council also respectfully requests Shoalhaven Starches insist their drivers and all contract drivers use the Princes Highway and Bolong Road of a night time when travelling to/from Shoalhaven Starches, and heed to 40kph speed limits during school peak periods, and would recommend consent condition to similar effect.</p>	<p>The EA is supported by a Noise Impact Assessment carried out by the Acoustic Group. The Assessment included an assessment of road traffic noise in accordance with the DECC's "Environmental Criteria for Road Traffic Noise" (the relevant guidelines).</p> <p>This assessment concluded that truck movements associated with this proposal would comply with these guidelines. It is noted that the DECC does not raise any issues in this regard.</p> <p>Shoalhaven Starches will also undertake to require all heavy vehicle drivers to utilise the Princes Highway and Bolong Road route during night time hours to and from Shoalhaven Starches; and comply with all traffic speed limits.</p>

Shoalhaven City Council (continued)

Submission Issues	Response
<p>New Packaging Plant - Proposed Overhead Transfer Project</p> <p>A report on the proposed development was considered by the Council's Development Committee on 13 May, 2008 and a subsequent report was presented to Council on 27 May, 2008.</p> <p>Council resolved that Shoalhaven Starches be advised of Council's support "in principle" to the concept of constructing an Overhead Transfer Bridge System (OTBS) over Bolong Road for the purposes of lodging a Part 3A Major Project Development Application with the Department of Planning for approval subject to:</p> <ol style="list-style-type: none"> The Company agreeing to redesign the exterior elements of the proposed structure to improve its architectural and visual qualities commensurate with a standard appropriate for the gateway to Bomaderry and the larger urban area of Nowra: and; The other issues raised in the Report of the General Manager – Development & Environmental Services being addressed by Shoalhaven Starches following further discussions with Council. <p>A full copy of the General Manager's Report was forwarded to Shoalhaven Starches, however the following is an outline of the main issues raised in relation to the proposal;</p> <ul style="list-style-type: none"> In addition to approval by Council (as the roads authority) for all works required to be undertaken in Bolong Road reserve, Bolong Road is a 'classified' road and the approval of the Roads and Traffic Authority (RTA) for all works in the road reserve will be required prior to construction. Occupancy of the air space over Bolong Road will require certain matters to be addressed such as, how the tenancy of the airspace is to be held (license agreement or purchase), maintenance responsibilities, regular inspection/certification of structural integrity, insurance and simple matters including rainwater collection and drainage without affecting motorists. Potential adverse visual impact and whether a more modern and improved design is warranted for one of the main tourist entrances to the Nowra/Bomaderry urban area. With appropriate architectural design, the structure could possibly become a positive visual element or feature. 	<p>Shoalhaven Starches agrees to address the exterior appearance of the proposed service/pedestrian bridge and other matters raised in consultation with Shoalhaven City Council.</p>

Shoalhaven City Council (continued)

Submission Issues	Response
<ul style="list-style-type: none"> • Potential hazards from an overhead structure above the roadway. This would require Council and the RTA to be satisfied that the support columns of the OTBS are appropriately protected and the supports are located on Manildra land and no non-frangible structures are located within the “clear zone” requirements for Bolong Road without protection to safe standards. (note in accordance with current standards the clear zone requirements could be in the order of some 6-7m when considering 85%ile operational speeds in the area and current traffic volumes) • Height and clearance – as the minimum height clearance to the road pavement is proposed to be 7 metres, there should not be any problems with the bridge acting as an obstruction to public road usage. However, the final determinate of this issue will be the RTA. The overall height of the OTBS is proposed to be 11.6 metres. • The location of the proposed new access road intersection with Bolong Road and in particular, the alignment of the left turn slip lane creates the potential for conflict with the northern support for the OTBS and location of right turn bay for access point 2 and pedestrian refuge (to provide safe pedestrian crossing of Bolong Road to access the new development). Refer other comments above about the need for integrated detailed design to be submitted addressing all aspects of design in this vicinity, and note Council has to date received insufficient information to be able to comment whether the proposed access can be constructed to safe standards, when considering other requirements for construction in this area. 	<p>Refer above.</p>
<p><u>Car Parking</u></p> <p>Council is not satisfied with the response by Shoalhaven Starches in relation to car parking.</p> <p>There are continued instances where Shoalhaven Starches staff and/or contractors are parking illegally in the road reserve and this compromises the safety of those staff / contractors and of motorists driving through the area.</p> <p>Shoalhaven Starches have responded in relation to the issue of car parking, stating that car park supply on site is in excess of the required car parking for the development. However there is no detailed plan showing how that was determined, where those car parking spaces are located on site, and demonstrating that those spaces have actually been provided <u>in accordance with standards</u>.</p>	<p>Section 6.6 of the EA details how the requirements of DCP 18 would apply to the proposal. Based upon the requirements of DCP 18 the proposed development would require to provide 89 parking spaces in addition to the existing situation. As outlined in this section of the EA, the DCP requirements have little relevance to the specific requirements of this project.</p> <p>The areas associated with the project relate to the housing of specific plant, which in most cases are of significant size and require housing for noise attenuation purposes. There is therefore no correlation between the floor space associated with these proposed works and the likely number of employees that will be generated by these works.</p>

Shoalhaven City Council (continued)

Submission Issues	Response
<p>Council would expect that Council's DCP 18 (car parking code) be complied with respect of all parking requirements on site, and that the total parking demand generated by the development as a whole be provided all on site in accordance with Council's DCP 18. This includes sealing and marking of all spaces in accordance with DCP 18.</p> <p>Once this is demonstrated, it is accepted that any additional parking (ie in excess of the minimum parking requirements) can be provided as informal (overflow) parking areas, however these areas need to be controlled to ensure safety of motorists and pedestrians is not compromised by informal parking activity.</p> <p>The fact that there are continued instances where Shoalhaven Starches staff and/or contractors are parking illegally in the road reserve indicates that parking is still an outstanding issue.</p> <p>In addition to day to day operations of the site, the impact of construction staff parking is a significant issue and this has always exacerbated the parking problems in Bolong Road for most previous construction activities on site.</p> <p>Condition of consent must include submission of a detailed construction management plan which addresses vehicle movements including heavy vehicle movements, car parking and pedestrian safety, to the satisfaction of both Council and RTA. This may include the submission of a traffic control plan for approval to ensure the safety of workers and the travelling public past the site. Refer below for requirements of traffic management plans.</p>	<p>Section 7.7.15 of the EA deals specifically with car parking. Figure 28 provides a plan identifying car parking over the site. With the acquisition of the "Moorehouse" site, the provision of parking for the site has been significantly increased. The site currently provides approximately 259 formal parking spaces, including:</p> <ul style="list-style-type: none"> • 21 spaces in the Main Office area. • 12 spaces in the Project Office area. • 14 spaces to the rear of the Project Office. • 110 spaces in the "Moorehouse" maintenance workshop area car park accessed from Access Point 4. • 50 spaces in the DDG Loadout area. • 52 contractor parking spaces to the south west of the site. <p>In this regard, Section 7.7.15 outlines the following additional parking spaces are proposed to be provided:</p> <ul style="list-style-type: none"> • Maintenance workshop area ("Moorehouse") – 40 spaces; • Proposed Packing Plant – 34 spaces; • East of coal storage area – 20 spaces. <p>Based on the above with an existing provision of 259 spaces and proposed additional 94 spaces the Shoalhaven Starches' site will be able to provide a total of 353 spaces including both permanent and temporary contractor parking. This would also ensure compliance with the parking requirement of DCP 18.</p> <p>Christopher Stapleton Consulting (CSC) has estimated the current peak parking demand – based on staff on-site and minimal car driver reduction opportunities – at 180 parking spaces.</p> <p>While an additional 15 staff would be on-site at any one time (5 office staff and 10 shift staff) the Proposal will see 15 staff relocated to the new packaging plant, and as such there is unlikely to be any significant increase in on-site parking demand; the 353 parking spaces to be provided on-site will provide in excess of peak demands.</p>

Shoalhaven City Council (continued)

Submission Issues	Response
	<p>According to CSC the parking currently available on-site would also accommodate the bulk of additional demand that could be generated during super-peak periods, such as during a construction period.</p> <p>Given that parking areas will therefore be available on-site in excess of the combined demand of both standard staff requirements plus contractor requirements and will satisfy DCP 18 requirements, there is no reason for parking to be generated off-site, and specifically in Bolong Road.</p>
<p><u>Submission of design for Council approval</u></p> <p>Condition of consent must include submission of a design addressing all of the above issues, to the satisfaction of both Council and RTA</p> <p>It is recommended that a condition would include requirement for statement of commitments and for <i>the statement of commitments to be modified to require the above issues to be addressed and that that detailed engineering drawings and specifications be submitted to Council and RTA for approval prior to the commencement of works.</i></p> <p><u>Works in Road reserve require approval by Council under section 138 of Roads Act and separate approval from RTA due to Bolong Road being classified main road (MR263).</u></p> <p>Subject to the applicant submitting detailed design plans to the satisfaction of Council and RTA, the following is likely 138 conditions from Council (note Council can not issue 138 approval for works on Bolong Road until RTA concur and until all RTA requirements have been addressed) ;</p> <p>Extract Council Standard 138 conditions;</p> <p><i>In accordance with Section 138 of the Roads Act 1993, approval is given for the work subject to traffic control being implemented in accordance with AS 1742.3 and the RTA manual for Traffic Control at Worksites 1998, and provided;</i></p> <ol style="list-style-type: none"> 1. An application fee of \$110.00 (in 08/09) is paid to Council prior to commencing work on the site. <u>(This is to be Paid)</u> 2. A Traffic Management Plan (TMP) showing proposed traffic signposting around the construction site, in accordance with AS 1742.3 and the latest RTA manual for Traffic Control at Worksites, is submitted to Council prior to work commencing. <u>(This is to be supplied.)</u> 	<p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p> <p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p> <p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p>

Shoalhaven City Council (continued)

Submission Issues	Response
<p>3. No work is to commence until the signage is erected in accordance with the TMP. Note that the plan is to address both motor vehicle traffic, parking, and pedestrian traffic. The applicant is to incorporate any reasonable direction by Council or RTA in relation to any necessary modifications of the TMP.</p>	<p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p>
<p>4. A Direction To Restrict (DTR) may need to be obtained from the Roads & Traffic Authority (contact Mr Wayne Wilson Ph 4221 2460) to reduce the legal speed limit through the work site. The legal limit is to be reduced to 40kph if working within 1.2 metres of the traffic lane and 60kph if working within 3 metres of the traffic lane. Any works within these clearance limits cannot commence until the necessary paper work for the DTR has been approved and set in place. There may be other reasons when a direction to restrict is required to ensure the safety of workers or the travelling public past the site. Any requirements for DTR must be determined as part of your submitted traffic management plan, and a minimum of ten (10) works days should be allowed for obtaining of a DTR.</p>	<p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p>
<p>5. All concrete and sealed road and driveway crossings are under bored wherever practical.</p>	<p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p>
<p>6. The contractor meets all obligations under the Occupational Health & Safety Act 2000, and relevant Work Cover requirements including appropriate traffic controls.</p>	<p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p>
<p>7. Provision is made for service vehicles, resident's etc to gain access to properties at all times.</p>	<p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p>
<p>8. Public Liability insurance in an amount of \$10 million is maintained for the construction period. Written evidence of a current policy is to be provided prior to the commencement of work. <u>(This is to be Supplied)</u></p>	<p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p>
<p>9. The works proceed to completion without undue delay.</p>	<p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p>
<p>10. All traffic control including the placement and removal of barricades and/or regulation of traffic is to be carried out by Traffic Controllers accredited by the Roads and Traffic Authority. Upon request, the contractor must produce evidence that all relevant staff have the above accreditation.</p>	<p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p>

Shoalhaven City Council (continued)

Submission Issues	Response
<p>11. Upon request, the contractor must be able to produce evidence that all plant is registered and the subject of third party insurance.</p> <p>12. The disturbed area is restored to at least its original condition to the satisfaction of Council's Infrastructure Planning Manager at the applicant's cost. Any damage caused to the road or drainage system is to be brought to the notice of Council's Roads Asset Manager, to obtain agreement on the appropriate repair method. The completed work is to be approved by the Infrastructure Planning Manager.</p> <p>13. Where it is not possible to under bore the sealed road and driveway crossings and, and open trenching has been approved, the contractor is to undertake a temporary restoration of the trench as follows.</p> <ul style="list-style-type: none"> a. Use fully compacted sand and select backfill (free of organic material to achieve a 98% modified density when compacted in layers of 150 mm maximum thickness) surrounding the pipeline from the base of the trench to the top of the pipe (or to say 100 mm above the pipe if required) followed by a sand cement mixture at a ratio of 12:1 for the remaining depth of the excavation. b. Placement of a gravel pavement layer of 200mm thickness or to match the adjacent pavement thickness, whichever is the greater. Gravel pavement material is to be of DGB20 standard and compacted to a minimum 98% MMDD (Modified). c. A 50 mm thickness layer of asphalt is to be placed to finish flush with the adjacent road surface. Final restoration is to be undertaken by Council at the contractors cost. <p>A contribution is made to council to undertake the final restoration of the road carriageway and/or footpath. The cost of restoration is to be determined from the list of fees and charges approved by Council each year. Rates for restoration of various surface types can be found in Council's list of fees and charges.</p> <p>14. Affected residents or businesses are to be notified in writing indicating, at least seven days in advance of any road closure, the reason for the road closure, the period of the road closure and a company contact name and a 24 hour contact phone number.</p>	<p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p> <p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p> <p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p> <p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p>

Shoalhaven City Council (continued)

Submission Issues	Response
<p>15. <i>The work is completed and restored in accordance with Auspec #2 Specification 306 for Road Openings and Restorations. The sealed road surface is to be saw-cut 100mm wider than the excavated trench for the full depth of the bound pavement layers if it is not possible to under bore the road.</i></p> <p>16. <i>Council's Roads Asset Manager is notified in writing (or by fax 02 4429 3175) at least 48 hours in advance of construction commencing which includes placement of traffic control devices.</i></p> <p>17. <i>The applicant will be responsible for the disposal of any excess material and restoring table drains, shoulder seal and culverts blocked or damaged as a result of the works</i></p> <p>18. <u>The Applicant signs this agreement for the work.</u></p>	<p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p> <p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p> <p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p> <p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p>
<p><u>Developer Contributions</u></p> <p>There is no mention of developer contributions in the Statement of Commitments, but Council would expect contributions to be paid in accordance with the Contributions Plan (CP) in force at the time consent is issued. The current CP will levy for Roads (including the Bomaderry Industrial Bypass), Fire and Plan Administration. It would be expected that that Statement of Commitments would acknowledge commitments under the CP or acknowledge the existence of Council's policy on VPA's.</p> <p>As per the application "It is the recommendation of CSC that Shoalhaven Starches commits to be involved in any future consultation with the RTA and Council that examines the use of heavy vehicles throughout the entire area, as it is certainly the case that Shoalhaven Starches is a significant generator of heavy vehicle trips." This may include roadworks being conditioned in relation to this proposed development or contributions being made in relation to proposed roadworks.</p> <p>It should be noted that Council will be preparing a new CP during 2009. It is possible the new CP may be in force when this application is determined.</p>	<p>This matter was not specifically raised in Council's submission concerning the proposal.</p> <p>It is noted however that the Traffic Impact Statement prepared by Christopher Stapleton Consulting and which forms Annexure G to the EA with respect to heavy vehicle movements in part concludes:</p> <ul style="list-style-type: none"> • <i>"The Proposal will generate up to 88 additional vehicle trips daily (24 hours) to the local road network; the additional peak hour generation of the Proposal to the local road network would be up to 8 vehicle trips. These very minor traffic increases can be accommodated by the same conditioned local road upgrades as required for the recent SSFM Project, and have no significant impact on the local traffic network."</i> <p>The Traffic Study therefore concludes that the proposal would have no significant impact on the local traffic network.</p> <p>Subject to the accepted road upgrades as identified in the EA there would appear to be no justification or nexus for imposing conditions requiring payment of contributions for improvements to local roads.</p>

Submission Issues	Response
<p>RAILCORP</p> <p>While RailCorp is supportive of Shoalhaven Starches' proposal to increase transport to the site by rail, there are several concerns RailCorp has with regard to the management of these train movements. These issues have now been collated in the attached summary document for your consideration in the determination of the Ethanol Expansion Project.</p> <p>I request that you condition the approval, should it be granted, to ensure that Shoalhaven Starches Pty Ltd enter into an agreement with RailCorp regarding the management of the impacts of the proposal on RailCorp's passenger service and infrastructure.</p>	<p>Shoalhaven Starches notes that the covering letter from RailCorp requests that the Department condition any approval to ensure that Shoalhaven Starches Pty Ltd enter into an agreement with RailCorp regarding the management of the impacts of the proposal on RailCorp's passenger service and infrastructure.</p> <p>Shoalhaven Starches agrees with this requirement being imposed as a condition of consent.</p>
<p>Additional Assessments Required</p> <p>In reviewing the various documents attached to the Environmental Assessment (EA), RailCorp notes that the following assessments were not included:</p> <ul style="list-style-type: none"> • Kinematic envelope for the proposed grain trains. • Loading on bridges and clearances in tunnels. • Availability of train paths and line capacity. <p>These studies will be required before RailCorp could adequately determine the entirety of the impact of the proposed development on passenger operations.</p>	<p>Shoalhaven Starches agrees with this issue being addressed as a condition of consent</p>
<p>Train Paths and Line Capacity</p> <p>RailCorp notes that the proposed development is designed for an approximate 30% increase in processing, and as such an additional 4 trains per week are expected to enter the site (in addition to the 10 trains mentioned in the EA).</p> <p>According to RailCorp timetables, currently there are up to trains per 24 hour period with one train arriving in the day and one train at night. This is different to what is reported in the EA, which states that these trains both arrive at night. [Note: these trains stay at the site for several hours before departing, and as such there may be up to two daytime and two night time movements per day (one in, one out).]</p>	<p>Shoalhaven Starches agrees with this issue being addressed as a condition of consent</p>

RailCorp (continued)

<i>Submission Issues</i>	<i>Response</i>
<p>The available train paths to/from this site are limited and consequently detailed discussions between RailCorp and Shoalhaven Starches will be required to ensure that adequate train paths are available. If they are not, Shoalhaven Starches will need to increase the number of trucks movements to the site in order to meet its proposed production levels.</p> <p>The noise sections of the EA and Appendix Q state that no trains will be moved into the proposed new Packing Plant Rail Siding during the night. As a result, the majority of the trains arriving each week are likely to use the existing rail siding that is currently not long enough for the trains entering the site. This may have flow on effects to the level crossings and the South Coast Rail Line.</p>	<p>Shoalhaven Starches agrees with this issue being addressed as a condition of consent</p>
<p><i>Additional Rail Infrastructure Required</i></p> <p>A key concern for RailCorp is that there is limited space in the Bomaderry to Dapto rail corridor for trains to pass each other.</p> <p>Currently the freight trains running to the Shoalhaven Starches site are up to 520 m in length and as such are able to make use of the Dapto and Dunmore Loops to allow passenger trains to pass them as they await an available train path to the Shoalhaven Starches site. RailCorp understands that in order to meet the proposed production levels at the site, Shoalhaven Starches intends on increasing the length of its trains to 800 m long.</p> <p>RailCorp does not have the infrastructure on the South Coast Line to timetable for 800 m long trains. Shoalhaven Starches will be required to enter into an agreement with RailCorp that establishes how the additional trains and increased train lengths will be accommodated on the South Coast Line.</p> <p>Shoalhaven Starches Pty Ltd also needs to address how these longer trains will fit into their site, clear of the South Coast Line. The site will be required to fit two 800 m long trains if this is what Shoalhaven Starches proposed to run into the site each night.</p> <p>RailCorp understands that the rail corridor through the Shoalhaven Starches site extends for several hundred metres beyond the Shoalhaven Starches site. RailCorp is unaware of either the ownership or maintenance status of this corridor, but this may provide an opportunity for Shoalhaven Starches to accommodate these trains.</p>	<p>Shoalhaven Starches agrees with this issue being addressed as a condition of consent</p>

MAJOR PROJECT - MP06_0228
SHOALHAVEN STARCHES – ETHANOL PRODUCTION UPGRADE
PUBLIC SUBMISSIONS

Following the public exhibition of the EA the Department of Planning have received twelve (13) public submissions, comprising:

- Seven (7) submissions supporting the proposal.
- Six (6) submissions either objecting to or raising concerns in relation to the proposal.

Letters supporting the proposal were received from:

- Bomaderry Bowling Club
- Blueprint Shoalhaven
- E.M. & M. Jolly
- Shoalhaven Area Consultative Committee
- Soilco Pty Ltd
- Tasrave Pty Ltd
- Terara Sand Pty Ltd

The reasons given for supporting the proposal included:

- The project would have beneficial economic outcomes for the local economy and would result in job creation.
- The proposal would result in a reduction in odours.
- The proposal would result in a reduction in demand on potable water supplies.
- The proposal would result in a reduction in train movements across Bolong Road.
- Improvements to waste water management and re-use of waste waters.
- Broader environmental benefits associated with the use of ethanol as an alternative fuel.
- The proposal will results in a reduction in noise.

The following table provides a summary of those submissions received which either objected to or raised concerns with the proposal. The table also includes responses to the issues raised.

<i>Submission Issues</i>	<i>Response</i>
<p>1. Kira Bradley 35 Elia Avenue, Nowra</p> <ul style="list-style-type: none"> – Supports proposal as it would be good for the economy. – Objects to current smell and noise. 	<p>A significant component of this project is Shoalhaven Starches' proposal to undertake a comprehensive odour reduction programme for both the existing factory as well as integrating this programme with the works associated with this proposal. This odour reduction programme has been formulated following an environmental audit of the factory and farm carried out by GHD Pty Ltd. The EA is supported by a comprehensive odour assessment carried out by GHD Pty Ltd. Shoalhaven Starches further commit to implementing the odour reduction measures prior to increasing production associated with the ethanol upgrade project as required by DECC.</p> <p>In terms of noise, the EA is supported by a comprehensive Noise Impact Assessment carried out by the Acoustic Group. This assessment details the noise impacts associated with the existing factory complex; and assesses the cumulative noise impact associated with the proposal (both during construction and operation). This Assessment concludes that the proposal will not result in noise levels exceeding the existing EPL's for the site. DECC concur with this conclusion.</p>
<p>2. John Tate PO Box 446, Nowra</p> <ul style="list-style-type: none"> – Does not oppose project if Manildra meets promises. – Based upon previous track record however doubts Manildra will meet environmental emission targets. – Is sceptical Manildra will reduce odours. 	<p>As outlined above the odour reduction measures proposed by Shoalhaven Starches as part of this proposal have been formulated following a comprehensive environmental audit carried out by GHD Pty Ltd of the existing factory and environmental farm operations. This proposal has been integrated into the recommendations of this audit. Furthermore the odour reduction measures as outlined in the EA are to be implemented prior to increasing production associated with the ethanol production upgrade as required by DECC. The audit, and the formulation of the project has been undertaken with an extensive consultation with regulatory authorities including the DECC and DoP. The odour reduction measures and other environmental objectives included in the EA are also detailed in the Statement of Commitments, agreed to by Shoalhaven Starches; and which will form part of any approval issued by the DoP.</p>

Submission Issues	Response
<p>3. Anne Marie Abbet 80 Hannigans Lane, Bolong</p> <p>Objection/raised concerns:</p> <ul style="list-style-type: none"> – Concerns over increased noise from factory and trains. – Increased traffic impacts. – Concern about odours. 	<p>The issue of noise is discussed above with respect to Submission No. 1.</p> <p>The EA is also supported by a Traffic Impact Statement prepared by Christopher Stapleton Consulting. The Traffic Impact Statement includes recommendations which will seek to ensure road infrastructure is adequate to adequately cater for traffic associated with the proposal. The Traffic Impact Statement concludes that the proposal is supportable from an access, traffic and parking perspective.</p> <p>The issue of odours is discussed above with respect to Submission No. 1.</p>
<p>4. No name or address given</p> <p>Objections:</p> <ul style="list-style-type: none"> – Proposal will increase inundation levels for the 1% AEP flood event. Five residences within Hannigans Lane will be affected. – Will Manildra pay for houses to be raised? – Raising houses will affect character of older heritages homes. – Raises concern over traffic impacts particularly within Farm and “Soot trucks”. 	<p>The EA is supported by a flooding assessment carried out by Webb, McKeown & Associates. In terms of residences along Hannigans Lane the assessment states:</p> <p><i>“There are five residential buildings along Hannigans Lane which are affected by the cumulative increases. The increases are nil in the 5% AEP and 2% AEP and 2% AEP Events, 0.04 m in the 1% AEP event and 0.1 m in the Extreme event. One of the residences (#120) is first inundated in the 5% AEP event for which there is no increase in level. All the properties would be affected by the increases in flood level, and this would increase economic damages correspondingly. An indication of the magnitude of the increases in damages is given in Section 3.2.8. Four out of the five residences are inundated by 0.5 m depth of water in the 1% AEP event with the other by less than 0.1 m.</i></p> <p><i>Lot 125 in Edwards Avenue is only adversely affected in the Extreme event where the depth of inundation is 2.8 m. An additional 0.02 m is considered to have nil impact on the level of damages.”</i></p>

Submission Issues	Response																
Public Submission No. 4 continued	<p>The assessment does not conclude that houses will need to be raised. Rather the assessment provides alternative options that may be considered to address flooding impacts. Table 5 in Section 3.2.8 of the report provides a quantitative analysis of the incremental increase in flood damages to <u>ALL</u> of the cumulative development which has occurred on the floodplain since 1990. With respect to the residences in Hannigans Lane the table indicates:</p> <table><tr><th rowspan="2">Location</th><th colspan="4">Flood</th><th rowspan="2">Net Present Value of Increases in Damages</th></tr><tr><th>Extreme</th><th>1% AEP</th><th>2% AEP</th><th>5% AEP</th></tr><tr><td>4. Five residences in Hannigans Lane.</td><td>\$5,000</td><td>\$12,600</td><td>\$0</td><td>\$0</td><td>\$2,100</td></tr></table> <p>Shoalhaven Starches could therefore agree to compensate affected landowners to the extent to which their project results in any increase in damage.</p> <p>The option of house raising is an alternative option as to how to mitigate damages arising from any incremental effects of flooding. Investigations carried out by Webb McKeown & Associates indicate that the dwellings situated along Hannigans Lane may be suitable. Raising houses can eliminate flood damages within the houses to a nominated level.</p> <p>With respect to the comments concerning heavy vehicle movements associated with the delivery of 'soot' to the farm, the following comments are made:</p> <ul style="list-style-type: none">• A proportion of the boiler and fly ash from the factory operations is transported to the Farm for use on roads within the Farm.• This practice is accepted by both the DECC and DPI.• Ash is only delivered on average 20 days per month.• There is an average of only 8 deliveries per day.• Delivery vehicles to the Farm use 3 different access points to the Farm – not the one single access.	Location	Flood				Net Present Value of Increases in Damages	Extreme	1% AEP	2% AEP	5% AEP	4. Five residences in Hannigans Lane.	\$5,000	\$12,600	\$0	\$0	\$2,100
Location	Flood				Net Present Value of Increases in Damages												
	Extreme	1% AEP	2% AEP	5% AEP													
4. Five residences in Hannigans Lane.	\$5,000	\$12,600	\$0	\$0	\$2,100												

Submission Issues	Response
Public Submission No. 4 continued	<ul style="list-style-type: none"> • The trucks that deliver the ash to the Farm are contractor vehicles which have wind over tarps. Loads are therefore covered. • Before the ash is delivered it is dampened. The boiler ash has a moisture content of 50% which further reduces the potential for it to become a dust or air particulate.
5. P. & M. Pickup 120 Hannigans Lane, Bolong Objection/raised concerns: <ul style="list-style-type: none"> – Concern over increase in flooding and resulting flood damages. – Requests compensation for damage caused by flooding. 	<p>Flooding impacts associated with the proposal are discussed with respect to Submission No. 4 above.</p> <p>It is noted that with respect to No. 120 Hannigans Lane, the Webb McKeown & Associates report states:</p> <p><i>“One of the residences (# 120) is first inundated in the 5% AEP event for which there is no increase in level.”</i></p>
6. No name or address provided <p>This submission was supported by two charts prepared by the correspondent. For sake of brevity these charts are not repeated in this response submission.</p> <p>Chart (1)</p> <ul style="list-style-type: none"> • This submission does not account for the flour milling waste and so understates the whole grain used in this operation. This leads to an understatement of the impact on food production, a community concern addressed in the submission. • This submission does not detail the starch products produced and in particular their tonnage. 555643 tonnes of these products is a very significant portion of total production and needs to be verified to show this is not an overstatement. 	<p>The thrust of this submission is it alleges that the EA downplays the impact that this proposal would have on food production and avoids the “food for fuel debate”.</p> <p>As outlined in Section 5.3 of the EA the products created at the Shoalhaven Starches plant at Bomaderry are essential ingredients for a wide range of food production industries within NSW, Australia and overseas. At Shoalhaven Starches it is the lower grade starch and wastage from starch, gluten and syrup production processes that when combined feed the fermentation and distillation stages of ethanol production. In this way ethanol produced at Shoalhaven Starches is a value added product processed from the Company's waste stream. In the past this waste stream was simply disposed to the Shoalhaven River.</p>

Submission Issues	Response
<p>Public Submission No. 6 continued</p> <p>Chart (2)</p> <ul style="list-style-type: none"> • Total raw material tonnage of 1155000 (m) does not tally with the total tonnage from Table 3 of 1389400. (a) + (l). • The 955000 tonnes remaining product output (o) does tally with estimates of DDGS (k), gluten (j) and starch (g) in Chart (332800+62210+555643=950653). This points to the veracity of my figures in Chart (1). • The quantity of grain to produce 300mL ethanol has been grossly understated. One tonne of wheat yields 370 litres of ethanol so 810810 tonnes of grain is needed to produce 300mL ethanol. • The statement that 'ethanol production will only involve approximately 20% of the total production from the Shoalhaven starches plant' is clearly misleading. <p>In summary, constant understating of materials used and the possible overstatement of starch industrial and food production points to a deliberate attempt to downplay the impact of this Ethanol Expansion on food production and so avoid the food for fuel debate raging around the world today.</p>	<p>The primary purpose of the majority of raw materials delivered to the Shoalhaven Starches factory is for the production of gluten, starch and glucose which are used in a wide range of food, paper, cardboard, confectionary, soft drink, beer and other manufacturing processes. The majority of production output will continue to involve food related products.</p> <p>This is supported by the correspondents own "Chart 1". Whilst Shoalhaven Starches have significant reservations about the correspondents "Chart 1" and its relevance to the operations that are actually carried out at the Bomaderry plant, Chart 1 clearly shows that ethanol production involves only approximately 20% of the total production output from the total grain delivered to the site. The remainder of outputs from the processes are shown as carbon dioxide, food starch products, gluten and DDGS all of which either directly or indirectly are used in food production processes. This confirms the statements detailed in the EA.</p> <p>Shoalhaven Starches however raise concerns with the assumptions underpinning the correspondent's charts and submission. The submission assumes for instance that 100% of the total production inputs as outlined in Section 5.4 of the EA will be used simultaneously in the production processes. This however is not what actually occurs with production at the plant.</p> <p>The EA details the anticipated maximum inputs to the production processes. The factory processes will not however operate continuously and simultaneously at these maximum production rates.</p> <p>For instance the level of raw material inputs, such as flour, will vary dependent upon price and /or availability (especially during drought periods).</p> <p>Also the level of protein in the flour varies dependant upon growing conditions. This has implications for the production rates for gluten; and therefore the relevant mixes used during the overall production processes.</p> <p>As a result the EA provides maximum inputs into the production processes to provide appropriate inbuilt flexibility for the overall production processes. This will enable the Company to shift the balance of one production process to another when raw material supply varies or price warrants it to occur. Figure 6 within the EA should not be read as a mass balance for the</p>

	<p>production processes at the site. It is not. It is, as it states, a flow chart to provide a simplified outline of the factory processes at the plant.</p> <p>As a result this submission fails to recognise the need for inbuilt flexibility within the production process to change the mixture of inputs during the production processes to cater for change in demand, price and quality of raw materials. As a result the submission underestimates the level of output of production related to food related products and overstates the role the production process play in ethanol production. In this regard the EA is quite clear that the proposal seeks to produce 300 ML of ethanol per annum as a maximum.</p>
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MAJOR PROJECT - MP06_0228
SHOALHAVEN STARCHES – ETHANOL PRODUCTION
UPGRADE

SUBMISSIONS

- | | |
|-----------------------|--|
| Annexure A | Report on Odour Control Works and Ethanol Upgrade
Response to Submission on the Air Quality Assessments
from NSW Government Department of Planning
prepared by GHD Pty Ltd – October 2008 |
| Annexure B(i) | Shoalhaven Plant Upgrade PHA
Response to Department of Planning Comments
Concerning Hazards prepared by GHD Pty Ltd
– October 2008 |
| Annexure B(ii) | Revised Preliminary Hazard Analysis
prepared by GHD Pty Ltd – October 2008 |
| Annexure C | Overall Site Plan showing Minimum
Average 20 metre Riparian Zone
prepared by Allen Price & Associates
– October 2008 |
| Annexure D | Proposed Bolong Road Upgrade Works
prepared by Allen Price & Associates
– October 2008 |
| Annexure E | Supplementary Flora & Fauna Assessment
prepared by Kevin Mills & Associates
– October 2008 |

ANNEXURE A

**Report on Odour Control Works
and Ethanol Upgrade**

**Response to Submissions
on the Air Quality Assessments**

from NSW Government Department of Planning

prepared by

**GHD Pty Ltd
October 2008**



CLIENTS | PEOPLE | PERFORMANCE

Shoalhaven Starches

Report on Odour Control Works and Ethanol Upgrade

**Response to Submissions on the Air
Quality Assessment from the NSW
Government Department Of Planning**

October 2008

Revision 0



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1. Introduction

GHD Pty Ltd (GHD) was engaged by Shoalhaven Starches to respond to the submissions on the Environmental Assessment for Shoalhaven Starches Odour Control Works and Ethanol Expansion Project.

The NSW Government Department of Planning (DoP) submissions pertaining to the Air Quality report¹ are as follows:

1. *Please provide model run outputs in the form of contour plots for the existing plant with the environmental farm included as the existing base case;*
2. *On page 33 of the GHD report it is noted that the bioscrubber has a residual odour from the biomass substrate. It appears that this odour has not been included in the emissions from the bioscrubber and it is the remaining 15% of the process odour that has been modelled. Therefore the claim that this odour will not be inherently offensive needs to be justified;*
3. *Page 65, Section 8.1.1 of the GHD report refers to the fact that the bioscrubber will contribute less than 1 ou to the predicted odour impact at the most sensitive receptor, R1. It is not clear which scenario this relates to. The implication is that it refers to the existing factory with the Stage 1 controls. For the ethanol upgrade and subsequent Stage 2 and 3 controls, the emission rate increases by a factor of about 3-4. This should be clarified; and*
4. *It is noted in Section 8.1.2 and Figure 8.7 of the GHD report that there is not a significant increase to predicted odour levels at the selected receptors near the factory as a result of adding the odour emissions from the wastewater treatment plant from the environmental farm into the model that represents the factory after Stage 1 odour control plus the ethanol upgrade. An additional scenario needs to be presented that shows Stage 3 odour controls, ethanol upgrade and the environmental farm with all proposed odour controls in place. This model run represents the ultimate configuration proposed for the plant.*

GHD's responses to the above DoP submissions are presented in Section 2.

¹ Shoalhaven Starches, Report on Ethanol Upgrade – Air Quality Assessment, GHD report 22/13594/81099 rev 0, July 2008.



2. Response to Submissions

2.1 Existing Case - Factory and Environmental Farm

Figure 2-1 shows the predicted odour concentrations (99 percentile, 1-second average) for the existing factory and environmental farm under normal operating conditions (Pivots Nos. 120 and 130 and four traveller irrigators operating between 5 a.m. and 5 p.m. daily). The predicted odour levels at the designated sensitive receptor locations are approximately 8 to 13 odour units higher than the predicted odour levels for scenario A (Factory with existing level of odour control).

Further information on the contribution of odour emissions from the environmental farm can be found in Section 8.7.2 of the Shoalhaven Starches Environmental Audit of Odour Sources report².

2.2 Bioscrubber Residual Odour

As stated in Section 5.1.1 of the Air Quality report, it is anticipated that the bioscrubber could achieve an odour removal efficiency of up to 99%, which would essentially only leave the residual odour emission from the biomass substrate. However, a conservative odour removal efficiency of 85% was assumed.

The residual odour emission rate from the biomass was not used for model input because the emission rate of the remaining 15% of the process odour was approximately equal or greater than the residual biomass odour emission rate at each respective stage of odour control.

It was not considered appropriate to add the residual odour from the biomass to the residual process odour because it is more likely that the biomass odour would have a masking effect on the process odour rather than having an additive effect due to the difference in odour characters. Nonetheless, if the additive approach had been used in the air quality assessment, the increase to the predicted off-site impact would have been negligible. Based on the model results presented in Section 2.3 below, the addition of residual biomass odour (12,500 OU m³/s) to the residual process odour emission rate from the bioscrubber for the stage 3 odour control scenario would result in an increase in predicted odour impact of approximately 0.2 OU at the most exposed sensitive receptor. As shown in Section 2.3, the maximum predicted odour concentration at the most exposed sensitive receptor attributed to bioscrubber odour emissions was 0.5 OU.

In light of the above, the residual process odour emitted from the bioscrubber is unlikely to contribute to cumulative odour impact leading to odour complaint (i.e. offensive odour) because:

- ▶ The predicted odour contribution from the bioscrubber was less than the theoretical minimum odour concentration (i.e. 1 odour unit) that is detectable to the human nose at the nearest sensitive receptors; and
- ▶ The residual biomass odour emissions, which typically have a not-unpleasant earthy character, are likely to have a masking effect on the residual process odour emissions.

² Shoalhaven Starches, Environmental Audit – Odour Sources, GHD report 23/11918/129282 rev 4, October 2007.



2.3 Bioscrubber Contribution to Off-site Odour Impact

Odour emissions from the bioscrubber were included in the model results presented for all odour control stages. Emission rates applied to the bioscrubber at each odour control stage were provided in Section 5.1.1 of the Air Quality report.

The maximum predicted ground level odour concentrations (99 percentile, 1-second average) at the most exposed sensitive receptor (Bomaderry-R1) resulting from odour emissions from the bioscrubber were as follows:

- ▶ Stage 1 odour control is approximately 0.15 OU;
- ▶ Stage 1 odour control plus ethanol upgrade is approximately 0.3 OU;
- ▶ Stage 2 odour control plus ethanol upgrade is approximately 0.5 OU; and
- ▶ Stage 3 odour control plus ethanol upgrade is approximately 0.5 OU.

Hence, the statement that the bioscrubber would contribute less than 1 OU to the predicted odour impact at the most exposed sensitive receptor (R1) is applicable to **all** the odour control scenarios presented in the Air Quality report.

2.4 Stage 3 Odour Control - Factory and Environmental Farm

The contribution of odour emissions from the proposed wastewater treatment plant (WWTP) to odour impact at sensitive receptors near the factory was considered to be insignificant on the basis that the predicted odour impact from the WWTP at the most exposed receptors near the factory was less than 1 OU (ranging from 0.2 to 0.8 OU). That is, the predicted odour contribution from the WWTP was, at worst, just at the theoretical minimum odour concentration that is even detectable to the human nose. Furthermore, odour emissions from all contributing activities need to be considered only where it is likely that two or more facilities with similar odour character would result in cumulative odour impacts. The character of the odour emitted from the WWTP would be different from the factory odour character; therefore, the assessment of cumulative odour impact from these sources should not be required.

Nonetheless, Figure 2-2 shows the predicted odour concentrations (99 percentile, 1-second average) for the model scenario that represents Shoalhaven Starches with Stage 3 odour controls, ethanol upgrade and the WWTP (scenario H). Table 2-1 summarises the results of the model scenarios (including the scenarios presented in the Air Quality report shown in *italics*), it shows the predicted odour concentrations at the factory site boundary and at sensitive receptors in Nowra, North Nowra, Bomaderry and Terara.

The results of for scenario H indicate that there is a marginal increase in the predicted odour levels at the sensitive receptors when compare to scenario E (Stage 3 odour control and ethanol upgrade excluding WWTP), and that the 2 OU criterion is met at sensitive receptors at Bomaderry, Terara, North Nowra and Nowra.

It should also be borne in mind that the 2 OU odour criterion was developed to limit odour nuisance to acceptable levels. Modelling to determine compliance or otherwise to the criterion is a design tool rather than a regulatory tool, and the overriding goal should be to minimise odour complaints rather than obtain technical attainment of a derived criterion.

Table 2-1 Updated Odour Model Results

Scenario	Scenario Description	Predicted Ground Level Odour (OU, 99 percentile, 1-second average)				
		Bomaderry (R1)	N Nowra (R2)	Nowra (R3)	Terara (R4)	Factory North- West Boundary
A	Factory principal odour sources with existing level of odour control	20 ⁽¹⁾	13	20	18	~100
B	Factory principal odour sources with Stage 1 odour control	5	3	5	5	~20
C	Factory principal odour sources with Stage 1 odour control plus ethanol upgrade odour sources	6	3	5	5	~25
D	Factory principal odour sources with Stage 2 odour control plus ethanol upgrade odour sources	3	2	3	3	~10
E	Factory principal odour sources with Stage 3 odour control plus ethanol upgrade odour sources	2	1	<2	<2	~5
F	Factory principal odour sources with existing level of odour control minus DDG plant odour sources	5	2	5	5	-
G	Factory principal odour sources with Stage 1 odour control plus ethanol upgrade odour sources and WWTP	6	3	5	5	25
H	Factory principal odour sources with Stage 3 odour control plus ethanol upgrade odour sources and WWTP	2	<2	2 ⁽²⁾	2	~5

(1) Incorrect odour concentration entered in Table 8-2 of the Ethanol Upgrade - Air Quality Assessment report; and

(2) In accordance with DECC *Approved Methods*, modelling the impact of complex mixtures of odours is not precise, so predicted impacts and criteria must be rounded to whole numbers. With respect to the odour contours shown in Figure 2-2, the predicted odour concentration at Nowra (R3) is approximately 2.3 OU.



Figure 2-1 Factory Odour Impact Model – Existing Factory and Environmental Farm

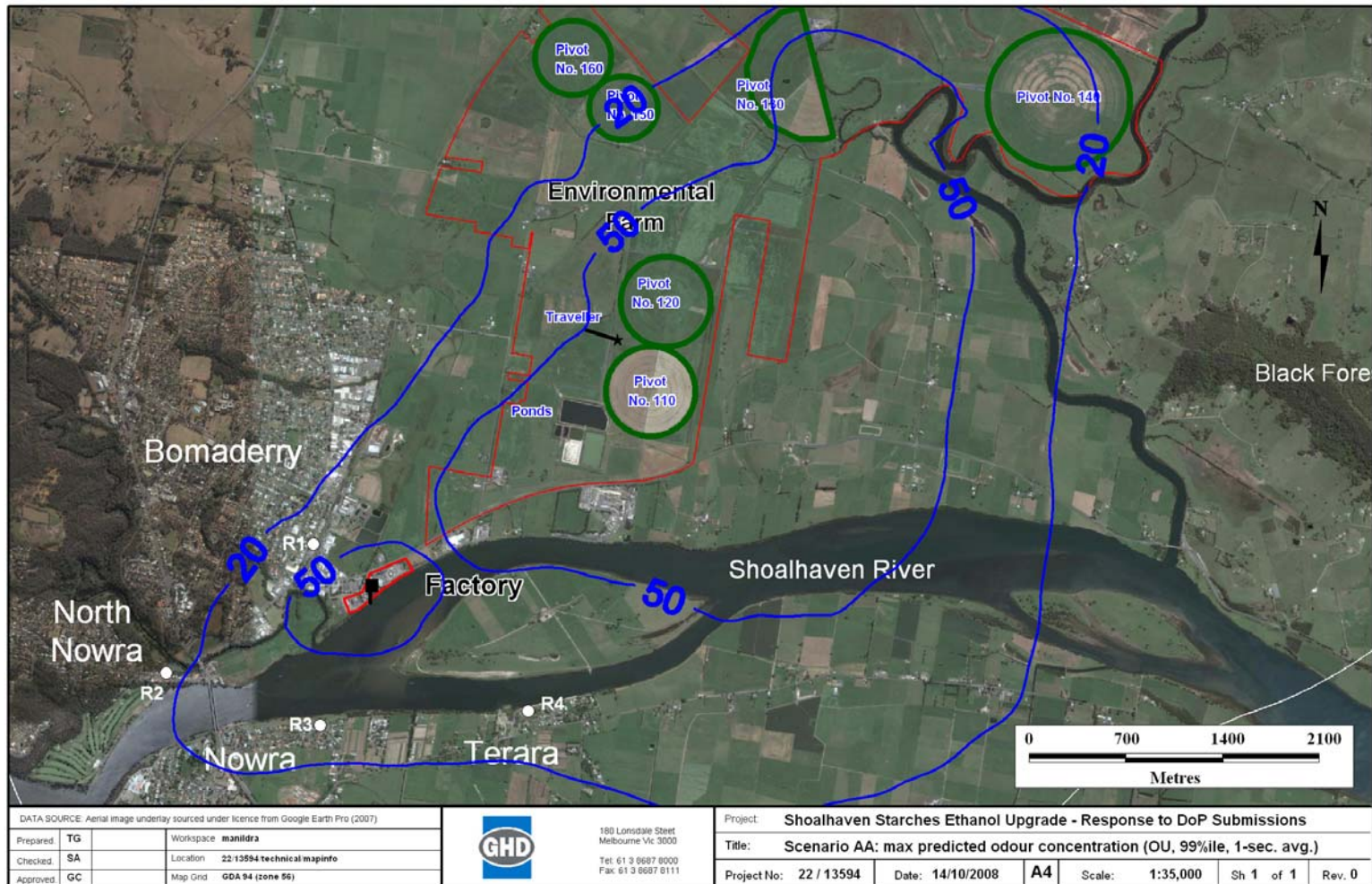
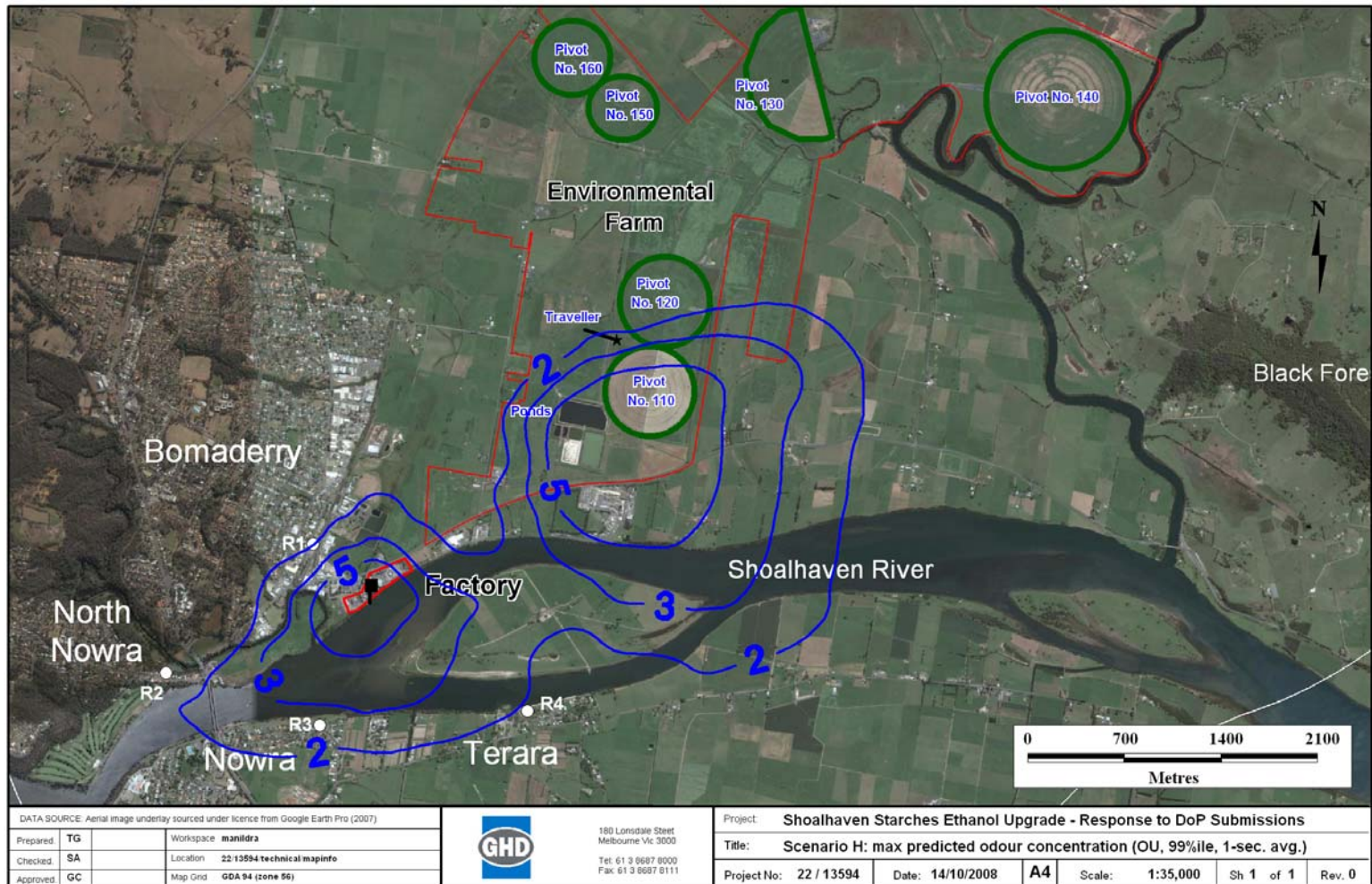




Figure 2-2 Factory Odour Impact Model – Scenario H (Factory with Stage 3 Odour Control and WWTP)





3. Limitations

This report has been prepared at the request of Shoalhaven Starches Pty Ltd and is for the sole purpose of evaluating the risks associated with the proposed ethanol upgrade at Shoalhaven Starches Bomaderry factory.

This report is not for use by any related or third party or for any other project. The information and recommendations are to be read and considered as a whole and the content is not to be used selectively as this may misrepresent the content of the report and provide erroneous project or decision outcomes.

The recommendation, opinions, assessments, analyses and summaries presented in this report are based exclusively on information, data, assumptions and advice provided and verified by Shoalhaven Starches Pty Ltd. This information has not been independently verified by GHD Pty Ltd, and where assumptions are identified and recommendations made these need to be verified and tested.

As GHD has been unable to independently verify the input information, data, assumptions and advice provided by Shoalhaven Starches Pty Ltd, GHD does not represent, warrant or guarantee the assessment provided in this report.

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GHD

352 King St Newcastle NSW 2300
PO Box 5403 Hunter Region Mail Centre NSW 2310
T: (02) 4979 9999 F: (02) 4979 9988 E: ntlmail@ghd.com.au

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Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
Draft A	S. Anderson	T Pollock	<i>T Pollock</i>	G. Collins	<i>G. Collins</i>	17/10/08
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