



NSW GOVERNMENT
Department of Planning

**Manufacturing & Rural Industries
Major Development Assessment**
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Level 4 Western Gallery
23-33 Bridge Street
GPO Box 39
SYDNEY NSW 2001

Brian Hanley
Shoalhaven Starches Pty Ltd
PO Box 123
NOWRA NSW 2541

Our ref: S06/00614

Dear Mr Hanley

**Director-General's Requirements
Shoalhaven Starches Ethanol Expansion Project, Bomaderry
Project Application No. 06_0228**

The Department has received your application for the proposed ethanol expansion at the Shoalhaven Starches factory at Bomaderry in the Shoalhaven local government area.

I have attached a copy of the Director-General's requirements (DGRs) for the project. These requirements have been prepared in consultation with the relevant Government authorities, and are based on the information you have provided to date. I have also attached a copy of the Government authorities' comments which form part of the DGRs.

Please note that under section 75F(3) of the *Environmental Planning and Assessment Act 1979*, the Director-General may alter these requirements at any time.

If your proposal is likely to have a significant impact on matters of National Environmental Significance, it will require an additional approval under the Commonwealth *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act). This approval is in addition to any approvals required under NSW legislation. It is your responsibility to contact the Department of Environment, Water, Heritage and the Arts in Canberra (6274 1111 or <http://www.environment.gov.au>) to determine if the proposal is likely to have a significant impact on matters of National Environmental Significance, and requires an approval under the EPBC Act. The Commonwealth Government has accredited the NSW environmental assessment process for assessing any impacts on matters of National Environmental Significance. As a result, if it is determined that an approval is required under the EPBC Act, please contact me immediately as supplementary Director-General's requirements will need to be issued.

I would appreciate it if you would contact the Department at least two weeks before you propose to submit your Environmental Assessment for the project to determine the:

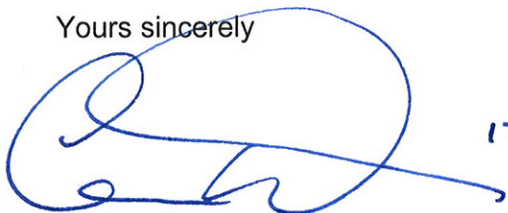
- fees applicable to the application (see Division 1A, Part 15 of the *Environmental Planning and Assessment Regulation 2000*);
- consultation and public exhibition arrangements that will apply; and
- number of copies (hard-copy or CD-ROM) of the Environmental Assessment that will be required for exhibition purposes.

As you may know, the Department will review the Environmental Assessment in consultation with the relevant authorities to determine if it adequately addresses the Director-General's requirements. If the Director-General considers the Environmental Assessment to be inadequate, you will be required to revise it prior to public exhibition.

The Director-General's requirements will be placed on the Department's website along with other relevant information which becomes available during the assessment of the project. As a result, I would appreciate it if the documents submitted to the Department are in a suitable format for the web, and if you would arrange for an electronic version of the Environmental Assessment for the project to be hosted on a suitable website with a link to the Department's website.

If you have any enquiries about these requirements, please contact Deana Burn on 02 9228 6471.

Yours sincerely



17.1.08

Chris Wilson
Executive Director
Major Project Assessment
As delegate for the Director-General

Director-General's Requirements

Section 75F of the *Environmental Planning and Assessment Act 1979*

Application number	06_0228
Project	Expansion of ethanol production from 126 million litres per annum to 300 million litres per annum. The expansion includes the installation of a gas fired co-generation plant, water treatment, additional fermenters, dryers, evaporators and associated infrastructure.
Location	160 Bolong Rd, Bomaderry
Proponent	Shoalhaven Starches Pty Ltd
Date of Issue	January 2008
Date of Expiration	January 2010
General Requirements	<p>The Environmental Assessment (EA) must include</p> <ul style="list-style-type: none"> • an executive summary; • a detailed written description and graphical representation of the project including: <ul style="list-style-type: none"> – need for the project; – alternatives considered; – engineering and/or architectural plans; and – various components and stages of the project, and in particular, the proposed staging of the odour reduction works in relation to the proposed expansion works to ensure current odour levels are substantially reduced. • consideration of any relevant statutory provisions including the consistency of the project with the objects of the <i>Environmental Planning and Assessment Act 1979</i>; • a general overview of the environmental impacts of the project, taking into consideration the issues raised during consultation; • a detailed assessment of the key issues specified below, and any other significant issues identified in the general overview of environmental impacts of the project (see above), which includes: <ul style="list-style-type: none"> – a description of the existing environment; – an assessment of the potential impacts of the project including cumulative impacts; – a description of the measures that would be implemented to avoid, minimise, mitigate, offset, manage, and/or monitor the impacts of the project; • a draft Statement of Commitments, outlining environmental management, mitigation and monitoring measures; • a conclusion justifying the project, taking into consideration the environmental impacts of the project, the suitability of the site, and any social, economic and/or environmental benefits that may arise as a result of the project; • a table indicating where each of the Director-General's requirements have been addressed in the EA and appendices; and • a signed statement from the author of the Environmental Assessment certifying that the information contained in the report is neither false nor misleading.
Key Issues	<ul style="list-style-type: none"> • Odour (also refer to detailed DECC requirements attached) including: <ul style="list-style-type: none"> – detail the timing for implementation of all findings of the <i>Environmental Audit – Odour Sources, GHD October 2007</i> (Odour Audit) to ensure the existing facility complies with Section 129 of the <i>Protection of the Environment Operations Act, 1997</i> (POEO Act); – identify all odour sources and predict odour emissions from construction and operation of the proposed expansion;

	<ul style="list-style-type: none"> - assess cumulative odour impacts at residences from the existing facility and the proposed expansion, considering any other developments existing and/or approved in the area; - describe any additional odour mitigation measures for the proposed expansion, to comply with Section 129 of the POEO Act; - quantify the odour reduction achieved at residences by proposed odour mitigation measures; - outline contingency measures for on-going odour management. • Wastewater (also refer to detailed DECC requirements attached) including: <ul style="list-style-type: none"> - clearly describe the wastewater treatment process for the existing facility and the proposed expansion including details of the volume of wastewater generated, treated, reused/recycled, and/or stored on site; - detail the key pollutant concentrations of the wastewater before and after treatment with reference to relevant water quality guidelines; - where reuse/recycling is proposed in connection with Shoalhaven Council's Recycled Effluent Management System (REMS), provide an assessment of environmental impacts from REMS including capacity, water quality, sustainability of irrigation and impacts on aquatic systems associated with increased discharges. - provide an Irrigation Management Plan that details existing irrigation practices and includes a detailed water balance for proposed changes to irrigation due to expansion. The water balance shall also include analysis of the sustainability of on-going effluent irrigation onto the Environmental Farm; - details of wastewater management shall be integrated and consistent with the odour assessment; - detail all measures to ensure compliance with Section 120 of the POEO Act including contingency measures to manage wastewater during prolonged periods of wet weather; • Water and Soils <ul style="list-style-type: none"> - detail water supply volumes including a breakdown of potable and non-potable sources for the existing facility and proposed expansion; - evaluate the feasibility of measures to reduce and/or minimise water use; - detail proposed erosion and sediment controls during construction; - detail proposed stormwater management system during construction and operation; - identify and detail measures to manage potential acid sulphate soils; - identify soil contamination and management measures. • Noise – detail the noise impacts of the existing facility, identify the additional noise sources from the proposed expansion and assess the cumulative noise impact at residences during construction and operation, in accordance with relevant guidelines. Assess operational traffic noise (road and rail) in accordance with relevant guidelines. • Transport and Access <ul style="list-style-type: none"> - prepare a Traffic Impact Study (TIS) in accordance with relevant guidelines; - assess the cumulative impact of existing traffic volumes and additional expansion related traffic on the existing road and rail network during construction and operation; including capacity, safety, key intersections, site accesses, internal roadways and parking; - detail the upgrade works required to accommodate additional traffic and assess the impacts of upgrade works. • Hazards and Risk – including: <ul style="list-style-type: none"> - a preliminary risk screening in accordance with State Environmental Planning Policy No 33 – Hazardous and Offensive Development (SEPP 33) and Applying SEPP 33 (DUAP, 1994). The screening must include information on the class, quantity and location of the dangerous goods and hazardous materials related to the project; - a Preliminary Hazard Analysis (PHA) prepared in accordance with the Department's publications hazardous industry <i>Planning Advisory</i>
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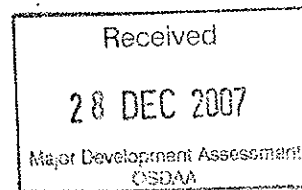
	<p><i>Paper No. 6 – Guidelines for Hazardous Analysis</i> (DUAP, 1997) and <i>Multi-Level Risk Assessment</i> (DUAP, 1997). The PHA must undertake assessment on the potential risks arising from the proposed expansion;</p> <ul style="list-style-type: none"> - detail contingency plans for any potential incidents and equipment failure during the operation of the project - detail a proposed monitoring and maintenance regime to be implemented for the project to ensure performance within acceptable risk limits. <ul style="list-style-type: none"> • Greenhouse <ul style="list-style-type: none"> - a full greenhouse gas assessment, including a quantitative analysis of the scope 1, 2 and 3 emissions of the project, and a qualitative analysis of the impacts of these emissions, in accordance with the requirements of the Australian Greenhouse Office's <i>Factors and Methods Workbook</i> 2006; - evaluate the feasibility of measures to reduce and/or offset emissions, including an - analysis of energy use. • Air Quality <ul style="list-style-type: none"> - quantify current and proposed emission rates for air pollutants from all sources during construction and operation, assess cumulative impacts with reference to relevant guidelines, and identify actions to prevent or mitigate emissions. - detail air handling systems, cooling towers and management systems for control of Legionnaire's disease. • Riverbank Stability, Riparian Management and Flooding <ul style="list-style-type: none"> - detail potential impacts on riverbank stability from proposed works; - provide options for bank stabilisation works including identification of minimum riparian corridor widths in accordance with relevant guidelines; - identify native riparian revegetation works required; - undertake a flood risk assessment identifying impacts on site, upstream and downstream of the site and any attenuation and/or mitigation required. • Waste Management - identify the quantity and type of all liquid and solid waste generated at the site and how this waste would be handled, processed and, if necessary, disposed of. • Visual – assess the visual impact of design and siting of the buildings, landscaping, lighting and any signage. • Flora and Fauna – including an assessment of any impacts on critical habitats, threatened species, populations or ecological communities and their habitats in the region. • Heritage – assess both Aboriginal and non-Aboriginal heritage impacts.
References	The Environmental Assessment should take into account relevant State government technical and policy guidelines. While not exhaustive, guidelines which may be relevant to the project are included in the attached list.
Consultation	<p>During the preparation of the Environmental Assessment, you should consult with the relevant local, State or Commonwealth government authorities, service providers, community groups or affected landowners. The consultation process and the issues raised must be described in the Environmental Assessment.</p> <p>In particular you should consult with:</p> <ul style="list-style-type: none"> • Department of Environment and Climate Change; • Department of Water and Energy; • Roads and Traffic Authority; and • Shoalhaven City Council.
Deemed refusal period	60 days

State Government Technical and Policy Guidelines - For Reference

Aspect	Policy /Methodology
Odour	
	Technical Framework: Assessment and Management of Odour from Stationary Sources in NSW (DEC)
	Technical Notes: Assessment and Management of Odour from Stationary Sources in NSW (DEC)
Water and Soils	
<i>Wastewater</i>	Environmental Guidelines: Use of Effluent by Irrigation (DEC)
	National Water Quality Management Strategy - Guidelines For Water Recycling: Managing Health And Environmental Risks (Phase1) (EPHC, NRMCC & AHMC)
	National Water Quality Management Strategy – Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 2): Augmentation of Drinking Water Supplies – Draft for Public Comment (EPHC, NRMCC & AHMC)
	National Water Quality Management Strategy: Guidelines for Sewerage Systems - Effluent Management (ARMCANZ/ANZECC)
	National Water Quality Management Strategy: Guidelines for Sewerage Systems - Use of Reclaimed Water (ARMCANZ/ANZECC)
	Environmental Guidelines: Use of Effluent by Irrigation (DEC)
<i>Riparian Management</i>	Riparian Corridor Management Study (DIPNR 2004)
<i>Erosion & Sediment Control</i>	Managing Urban Stormwater: Soils & Construction (Landcom)
	Design Manual for Soil Conservation Works - Technical Handbook No. 5 (Soil Conservation Service of NSW)
	Soil and Landscape Issues in Environmental Impact Assessment (DLWC)
	Wind Erosion - 2nd Edition (DIPNR)
<i>Flooding</i>	Floodplain Management Manual (DNR)
<i>Water Quality</i>	National Water Quality Management Strategy: Australian Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Implementation guidelines (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ)
	Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC)
	Using the ANZECC Guideline and Water Quality Objectives in NSW (DEC)
<i>Groundwater</i>	National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC)
<i>Contamination</i>	Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC & NHMRC)
	National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPC)
	Managing Land Contamination - Planning Guidelines SEPP 55 – Remediation of Land (DUAP and EPA)
	Contaminated Sites: Sampling Design Guidelines (NSW EPA)
	Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites (NSW EPA)
Noise	
	NSW Industrial Noise Policy (DECC)
	Environmental Criteria for Road Traffic Noise (NSW EPA)
	Environmental Noise Control Manual (DECC)
Transport and Access	
	Guide to Traffic Generating Development (RTA)

Aspect	Policy /Methodology
	Road Design Guide (RTA)
Hazards and Risk	
	State Environmental Planning Policy No 33– Hazardous and Offensive Development (SEPP 33) and Applying SEPP 33 (DUAP, 1994).
	Planning Advisory Paper No. 6 – Guidelines for Hazardous Analysis (DUAP, 1997)
	Multi-Level Risk Assessment (DUAP, 1997)
Greenhouse Gas	
	AGO Factors and Methods Workbook (AGO 2006)
	Guidelines for Energy Savings Action Plans (DEUS 2005)
	Guidelines for Water Savings Action Plans (DEUS 2005)
Air Quality	
	Protection of the Environment Operations (Clean Air) Regulation 2002
	Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (DEC)
	Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (DEC)
Waste	
	Waste Avoidance and Resource Recovery Strategy (Resource NSW)
	Environmental Guidelines: Assessment Classification and Management of Non-Liquid and Liquid Waste (NSW EPA)
Visual	
	Control of Obtrusive Effects of Outdoor Lighting (Standards Australia, AS4282)
Flora and Fauna	
	Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities. Working Draft (DEC)
	Draft Guidelines for Threatened Species Assessment under Part 3A of the <i>Environmental Planning and Assessment Act 1979</i> (DEC)
Heritage	
<i>Aboriginal</i>	Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (DEC)
	Aboriginal Cultural Heritage Standards and Guidelines Kit (NSW EPA)
<i>Non-Indigenous</i>	NSW Heritage Manual (NSW Heritage Office & DUAP)
	The Burra Charter (The Australia ICOMOS charter for places of cultural significance)

Our Reference : DOC07/50795 / DOC07 / 50797; FIL07/10559
Contact : David Winfield /Craig Jones 02 6122 3100



Mr Chris Ritchie
Manager
Major Development Assessment
Department of Planning
GPO Box 39
SYDNEY NSW 2001

Attention: Deana Burn

Dear Mr Ritchie

**RE: Environmental Assessment Requirements – Shoalhaven Starches Ethanol Upgrade
Major Project 06_0228**

I refer to the Department of Planning's (DoP) request for the Department of Environment and Climate Change (DECC) requirements for the environmental assessment (EA) in regard to the above proposal, received by the DECC on 11 December 2007.

DECC has considered the Preliminary EA Report for the project and has identified the information it requires to assess the project in Attachment A. The proponent should ensure that the EA is sufficiently comprehensive and detailed to allow determination of:

- the extent of the impacts of the proposal;
- the adequacy of actions that will be taken to avoid or mitigate impacts, as well as;
- the adequacy of action taken to achieve compliance of the proposal with legislation (in particular with the Protection of the Environment Operations (POEO) Act).

In summary, DECC has identified in ATTACHMENT A the critical information requirements that will allow a thorough assessment of the project.

Odour emissions and impacts on receivers

The EA must demonstrate and commit to a secure timeframe of actions to achieve compliance with section 129 of the POEO Act, at the existing level of activity, prior to the approval or commencement of any expansion. Section 129 of the POEO Act prohibits the emission from offensive odours from a licensed premises.

On 2 November 2007, Shoalhaven Starches Pty Ltd provided the document *Shoalhaven Starches Environmental Audit Odour Sources* ("the Audit Report"; GHD 2007) to the Land and Environment Court and published it on the Manildra website. The Audit Report identifies significant odour emissions from the existing level of activity at the premises, while the modelling demonstrates widespread impacts on receivers across Bomaderry, Nowra and surrounding areas. The Audit Report also identifies practical measures that DECC considers have the capacity, if fully

implemented, to significantly reduce the odour impact of Shoalhaven Starches at the current level of production.

Wastewater treatment and fitness for purpose of treated effluent

The EA must demonstrate that full biological wastewater treatment will be implemented prior to commencement of any expansion. The Audit Report identifies implementation of adequate wastewater treatment as a critical action.

The EA must demonstrate that the proposal will prevent pollution of waters. DECC has written to Shoalhaven Starches explicitly indicating that it will not vary its licence to permit any discharge of wastewater (including treated wastewater) to the Shoalhaven River.

The EA should assess the performance of wastewater treatment options in terms of (i) odour reduction; (ii) suitability for a range of recycled uses, using NSW and National guidelines (see ATTACHMENT B) and (iii) risk of impact to aquatic ecosystems by assessment using the Australian Guidelines for Fresh and Marine Water Quality (ANZECC 2000).

DECC notes that the Preliminary EA proposes that Shoalhaven Starches may seek to deliver treated effluent to Shoalhaven City Council's sewage treatment and recycling infrastructure (REMS scheme). Council has proposed to DECC that a meeting with all parties (including DoP) to discuss this proposal be held in early 2008. ATTACHMENT A indicates assessment requirements for this element of the proposal.

Other information requirements

The EA must also (see ATTACHMENT A for full requirements):

- provide a full water balance that demonstrates capacity to comply with section 120 of the POEO Act (being the prohibition of water pollution);
- provide a full irrigation management plan, demonstrating the agronomic capacity of the land, soil, crop and climate combination to sustainably assimilate the effluent;
- demonstrate that air emissions from existing and proposed additional plant will comply with the POEO Act and Regulations.
- provide a comprehensive assessment of greenhouse gas emissions and evaluate the feasibility of measures to reduce emissions associated with the proposal;
- assess noise emissions as required by the NSW Industrial Noise Policy;
- quantify and categorise waste inputs and outputs to the premises;
- assess the impacts of the project on threatened species and their habitat;
- assess the impacts of the project on Aboriginal cultural heritage values.

Structure, format and delivery of environmental assessment

DECC requests that 7 hard copies and 7 CDs of the EA are provided for assessment. These documents should be sent to DECC's Manager, South East Region, PO Box 622, Queanbeyan, NSW 2620. Any emailed material on statutory matters should be sent to queanbeyan@environment.nsw.gov.au.

If you have any queries regarding this matter please contact David Winfield or Craig Jones on 02 6122 3100.

Yours sincerely,



21/12/07

DAVID WINFIELD

Head of Operations Unit - South East Region
Climate Change and Environment Protection Group

Attachment A – Department of Environment and Conservation's Environmental Assessment Requirements

Environmental impacts of the project

The following environmental impacts of the project need to be assessed, quantified and reported on:

- Odour emissions and impacts on receivers
- Water quality
- Air quality
- Contaminated land
- Noise
- Threatened species
- Aboriginal cultural heritage

These should be assessed in accordance with the relevant guidelines listed in Attachment B.

Details are required on the location of the proposed development, including the affected environment, to place the proposal in its local and regional environmental context including surrounding landuses, planning zonings and potential sensitive receptors.

Describe mitigation and management options that will be used to prevent, control, abate or mitigate identified environmental impacts associated with the project and to reduce risks to human health and prevent the degradation of the environment. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

Note that when exercising licensing functions under the POEO Act, DECC is required to consider factors listed in section 45 of the Act. The EA should address those factors.

Odour Emissions and Impacts on Receivers - Context

On 2 November 2007, Shoalhaven Starches Pty Ltd provided the document *Shoalhaven Starches Environmental Audit Odour Sources* ("the Audit Report"; GHD 2007) to the Land and Environment Court and published it on the Manildra website. The Audit Report identifies significant odour emissions from the existing level of activity at the premises, while the modelling demonstrates widespread impacts on receivers across Bomaderry, Nowra and surrounding areas.

The Audit Report also identifies practical measures that DECC considers have the capacity, if fully implemented, to significantly reduce the odour impact of Shoalhaven Starches at the current level of production. However, DECC notes that the odour modelling suggests that even full implementation of the measures identified may not be sufficient to ensure compliance with section 129 of the POEO Act. DECC emphasises that the obligation is on Shoalhaven Starches to implement all measures necessary to achieve compliance with section 129 of the POEO Act.

The Court also ordered Shoalhaven Starches to report to it, "identifying what options identified in [the Audit Report] [Shoalhaven Starches] intends to implement and by when each such option will be implemented" ('the Statement of Implementation'). DECC notes that this Statement of Implementation (which is appended to the Preliminary EA) does not commit to implement all actions recommended in the Audit Report.

Odour Emissions and Impacts on Receivers - Environmental Assessment Requirements

The EA for this project must include the following information:

- an unambiguous and secure timeframe to implement all actions recommended by the Audit Report. The EA must provide a table identifying for each individual option in the tables in Chapters 11 and 12 of the Audit Report: (i) when the action will be completed, (ii) the basis for

prioritisation of actions and (iii) justification for any actions not prioritised according to greatest impact on receivers and (iv) demonstration that all actions will be completed prior to commencement of the expansion

- an unambiguous and secure process to (on an ongoing basis) identify and implement any additional actions, beyond those in the Audit Report, that may be necessary to achieve compliance with section 129 of the POEO Act;
- an itemised description of how Shoalhaven Starches is addressing each of the operational Environmental Management actions in section 13.6 of the Audit Report;
- identify, quantify (in terms of odour units) and characterise (ie in terms of offensiveness of hedonic tones) all current sources of odour emissions at the existing level of production;
- identify, quantify (in terms of odour units) and characterise (ie in terms of offensiveness of hedonic tones) all predicted or potential sources associated with the proposed expansion;
- identify the extent of impact of these odours on receivers (including by use of odour modelling and mapping of odour contours);
- firstly at the current level of production, demonstrate how each action to be taken will prevent (or where this is not possible will mitigate) odour emissions and impacts;
- subsequently, as an integral part of the proposed expanded level of production, demonstrate how each action to be taken will prevent (or where this is not possible will mitigate) odour emissions and impacts.

Air emission other than odour

- The EA must demonstrate that air emissions from all existing and proposed additional plant will comply with the POEO Act and Regulations.
- The EA must quantify current and proposed emission rates for air pollutants and identify actions to prevent or mitigate emissions.
- The EA must be conducted in accordance with the DEC publication "*Approved Methods for Modelling and Assessment of Pollutants in New South Wales*".
- The EA must assess PM10 (24-hour and annual average), total suspended particulates and deposited dust impacts; Particulate emissions are a primary air quality concern for the proposal. Details must be provided on proposed dust management strategies for all potential sources of particulates;
- The EA must assess the level of arsenate and other emissions from coal burning and demonstrate how these emissions will be prevented or mitigated;
- The EA must include a cumulative assessment that examines the impacts of the proposal combined with all existing and approved air-pollutant generating activities in the area.

Wastewater treatment and fitness for purpose of treated effluent

- The EA must demonstrate that full biological wastewater treatment will be implemented prior to commencement of any expansion. The Audit Report identifies implementation of adequate wastewater treatment as a critical action. The critical performance criterion for treatment of odour sources in the wastewater, will be reduction of organic loading (ie reduction in Biological Oxygen Demand (BOD)).
- The EA must demonstrate that the proposal will prevent pollution of waters. DECC has explicitly indicated to Shoalhaven Starches that it will not licence any discharge of wastewater (including treated wastewater) to the Shoalhaven River;
- The EA should demonstrate there is no inconsistency with any relevant Statement of Joint Intent established by the Healthy Rivers Commission
- The EA should assess the performance of wastewater treatment options in terms of (i) odour reduction; (ii) suitability for a range of recycled uses, using NSW and National guidelines (see ATTACHMENT B) and (iii) risk of impact to aquatic ecosystems by assessment using the Australian Guidelines for Fresh and Marine Water Quality (ANZECC 2000).
- It appears from the Preliminary EA Report that Shoalhaven Starches is not now proposing to install a microfiltration/reverse osmosis (MF/RO) wastewater treatment plant. Should this be reconsidered, it will be critical that the EA adequately deal with the issues associated with a brine stream. These include the increased concentration of pollutants, reduction in suitability

of the brine stream for irrigation or other re-use and the absence of treatment to reduce odorous organic loading. The brine stream would also increase the risk and consequence of any unanticipated overflow. The EA would need to address all these issues in detail, should Shoalhaven Starches again propose an MF/RO treatment system for wastewater.

- The EA must take into account and complement Shoalhaven City Council's Integrated Water Cycle Management Plan which is currently being developed.
- The EA must demonstrate that there is sufficient capacity to convey, treat and manage the sewage that is generated by this development. Evidence must be sought from Shoalhaven City Council that demonstrates capacity exists within Council's sewerage infrastructure to support this development.

DECC notes that the Preliminary EA proposes that Shoalhaven Starches may seek to deliver treated effluent to Shoalhaven City Council's sewage treatment and recycling infrastructure (REMS scheme). Council has proposed to DECC that a meeting with all parties to discuss this proposal be held in early 2008.

DECC's understanding is that this proposal would be contingent on Shoalhaven Starches providing treatment to a guaranteed prescribed level, prior to delivery to REMS. It is also likely to require re-assessment of environmental outcomes of REMS, because of the considerable additional volume. Such an assessment would need to consider matters including (but not limited to) any change in quality of the REMS effluent, sustainability of the REMS irrigation area and if increased discharge is proposed from Penguin Head, an assessment of the impact on Marine aquatic ecosystems, recreation and aquatic foods.

In this regard, any impact to the REMS scheme must be included in the EA and assessed against the relevant standards.

Sustainability of Shoalhaven Starches' effluent irrigation and storage

The EA must provide a full water balance that demonstrates adequate capacity to achieve compliance with section 120 of the POEO Act (being the prohibition of water pollution). This water balance should include realistic predictions of volume generated, volume treated and volume directed to each end use. The assumptions and basis for these predictions must be provided.

The EA must provide a full irrigation management plan for the Environmental Farm, demonstrating the agronomic capacity of the land, soil, crop and climate combination to sustainably assimilate the effluent, in terms of volume, nutrient load and other pollutant load. This management plan and the water balance for the farm must be consistent with relevant NSW and national guidelines (see ATTACHMENT B).

Using the water balance for the farm, the EA must demonstrate that adequate storage for wastewater and treated effluent will be available to prevent potential for pollution of waters when prolonged wet weather conditions prevent irrigation, noting that DECC will not licence a discharge of treated or untreated effluent to the Shoalhaven River.

Greenhouse Emissions

The *NSW Greenhouse Plan* (2005) commits the NSW Government to pursuing greenhouse gas emission reductions in NSW. The greenhouse impacts of new development is therefore a key consideration in the Environmental Assessment and development consent process.

When considering new developments with potentially significant greenhouse implications, the DECC considers key principles to be:

- The minimisation of direct greenhouse gas emissions (ie those generated on-site). This can be achieved, for instance, by the adoption of best available technology for fuel combustion and/or greenhouse gas capture and destruction.

- The minimisation of indirect greenhouse gas emissions (ie those generated off-site as a result of the activity, for example through electricity use). This can be achieved, for instance, by the adoption of measures to maximise energy efficiency and/or agreement by the proponent to purchase renewable energy (Green Power).
- The consideration of whether there are opportunities to offset residual greenhouse gas emissions that are associated with the activity, and of the cost effectiveness of these opportunities.

The DECC requires the following in relation to greenhouse emissions:

- A comprehensive assessment of and report on the project's predicted greenhouse gas emissions (tCO₂e). Emissions should be reported on a:
 - a. Greenhouse intensity (emissions per unit of production) basis;
 - b. Total annual emissions basis; and
 - c. Total project lifetime basis, including construction, operation and decommissioning.
- The assessment of project emissions should include direct emissions (ie, those occurring on the project site), indirect emissions (eg those offsite as a result of the project, such as through electricity use) and any significant upstream and/or downstream emissions associated with the project.
- The emissions should be estimated using an appropriate methodology, in accordance with the Department of Planning's Draft *"Guidelines: Energy and Greenhouse in EIA"* (2002) and the Australian Greenhouse Office's *"Factors and Methods Workbook"* (2006).
- Emissions should be compared in the EA against:
 - a. Industry 'best practice' emissions intensity for the activity; and
 - b. Total annual NSW emissions, so the impact of the proposal on NSW emission reduction targets can be evaluated.
- The proponent should evaluate and report on the feasibility of measures to further reduce greenhouse gas emissions associated with the project.

Contaminated Land

The EA must document the assessment and management of any land contamination to ensure that the land is not allowed to be put to a use that is inappropriate because of the presence of contamination. Under the Contaminated Land Management Act there is a responsibility to notify the DECC of sites that pose a significant risk of harm to human health or the environment.

Noise

- The EA must demonstrate that the proposal will be designed, constructed, operated and maintained so that there are no adverse impacts from noise (including traffic noise);
- The EA must assess the requirements of the NSW Industrial Noise Policy.

Waste

- The EA must provide details of all waste received at and dispatched from the site, including categorisation of the waste, using the *Environmental guidelines: Assessment, classification & management of liquid & non-liquid wastes* (EPA 1999);
- The EA must also assess waste receive against Schedule 1 of the POEO Act to determine if a waste licence is required.

Impacts of the project on threatened species and their habitat

The EA must describe what actions will be undertaken to avoid or mitigate impacts caused by the development on all threatened species described at the site

Impacts of the project on Aboriginal cultural heritage values

The EA should address and document the information requirements set out in the draft "Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation" involving surveys and consultation with the Aboriginal community.

The EA must identify the nature and extent of impacts on Aboriginal cultural heritage values across the project area.

Should the site be found to have significant Aboriginal cultural heritage values, the EA must describe the actions that will be taken to avoid or mitigate impacts or compensate to prevent unavoidable impacts of the project on Aboriginal cultural heritage values. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

The EA needs to clearly demonstrate that effective community consultation with Aboriginal communities has been undertaken in determining and assessing impacts, developing options and making final recommendations.

EA to provide itemised guide to DECC requirements

DECC requests that DoP require that the EA include a table clearly indicating where each itemised DECC EA requirement can be found in the EA and its appendices. This will assist DECC to provide DoP and the proponent with efficient and effective assessment and recommendations, given the overarching importance to this proposal of the legislation and issues DECC administers.

Attachment B - Guidance Material Assessing Environmental Impacts

Water quality

- National Water Quality Management Strategy: Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000)
- NWQMS Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC 2000)
- Healthy Rivers Commission Report into the Shoalhaven River and Statement of Joint Intent
- The relevant targets within the State Water Management Outcomes Plan
- *NSW Guidelines for Urban & Residential Use of Reclaimed Water* (NSW Water Recycling Coordination Committee, 1993).

Wastewater and irrigation

- National Water Quality Management Strategy: Guidelines for Sewerage Systems - Effluent Management (ARMCANZ/ANZECC 1997)
- National Water Quality Management Strategy: Guidelines for Sewerage Systems – Use of Reclaimed Water (ARMCANZ/ANZECC 2000)
- Environmental Guidelines for the Utilisation of Treated Effluent by Irrigation (NSW DEC 2004)
- Environment and Health Protection Guidelines: 'Onsite Sewage Management for Single Households', February 1998 (Silver Book).
- National Water Quality Management Strategy - Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 1) - November 2006
http://www.ephc.gov.au/ephc/water_recycling.html
- National Guidelines for Water Recycling – Managing Health and Environmental Risks – Impact Assessment http://www.ephc.gov.au/ephc/water_recycling.html

Stormwater

- Managing Urban Stormwater: Soils and Construction (NSW Landcom, 2004)
- Managing Urban Stormwater: Source Control (EPA 1998)
- Managing Urban Stormwater: Treatment Techniques (EPA 1998).

(Note: some of these documents will be revised in 2006)

Air quality

- Protection of the Environment Operations (Clean Air) Regulation 2002
- Approved Methods for the Sampling and Analysis of Air Pollutants in NSW
- Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in New South Wales
- (Draft) Assessment and Management of Odour from Stationery Sources in NSW
- Action for Air (EPA, 1998)

Contaminated Land

- Managing Land Contamination: Planning Guidelines - SEPP55 - Remediation of Land, Department of Urban Affairs and Planning and NSW EPA, 1998:
- Contaminated Sites – Guidelines for Consultants Reporting on Contaminated Sites (Environment Protection Authority (EPA) 1997);

- Contaminated Sites – Guidelines on Significant Risk of Harm and Duty to Report (EPA, 1999).

Noise and vibration

- NSW Industrial Noise Policy (EPA, 1999)
- NSW Environmental Criteria for Road Traffic Noise (EPA, 1999)
- Chapter 171 Noise Control Guideline, *Construction Site Noise, Environmental Noise Control Manual*, 1994.

Waste

- Environmental guidelines: Assessment, classification & management of liquid & non-liquid wastes (EPA 1999)

Assessing Threatened Species Impacts

- Draft Guidelines for Threatened Species Assessment - Available from Department of Planning.

Assessing Aboriginal Cultural Heritage Impacts

- Draft Guidelines For Aboriginal Cultural Heritage Impact Assessment and Community Consultation - Available from Dept of Planning
- Interim Community Consultation Requirements for Applicants
- <http://www3.environment.nsw.gov.au/npws.nsf/Content/Protecting+Aboriginal+objects+and+places>
- Aboriginal Cultural Heritage Standards and Guidelines Kit - Available shortly on-line through DEC's webpage.

Deana Burn - Shoalhaven Starches

From: MILLET Christopher P <Christopher_MILLET@rta.nsw.gov.au>
To: Deana Burn <Deana.Burn@planning.nsw.gov.au>
Date: 11/01/2008 11:01
Subject: Shoalhaven Starches

Deana

Reference is made to your letter dated 4 December 2008.

The RTA has reviewed the information provided and offers the following comments for your consideration:

- A traffic impact study (TIS) should be prepared in accordance with Table 2.1 of the *RTA Guide to Traffic Generating Developments*.
- Following consultation with Shoalhaven City Council, the RTA has concerns regarding outstanding conditions of consent relating to the Manildra access points on Bolong Road, improvements to pedestrian safety and upgrade to the rail level crossing (installation of boom gates). Given this, the environmental assessment should review past consents and identify, and commit to completion, any outstanding works. Consolidation of existing access points should be considered to reduce the number of conflict points along Bolong Road.
- All access points to the site from Bolong Road should be in accordance with the RTA Road Design Guide. Any access points that are not to standard should be upgraded or closed.
- The RTA strongly recommends that the developer considers the environmental impacts of any proposed roadworks as part of the Statement of Environmental Effects. If these impacts are not considered, then the RTA would require the applicant to provide a separate environmental impact assessment, a 'Review of Environmental Factors' prior to commencing any works that were conditioned as requirements of the development

Note: The RTA has a responsibility to ensure that all environmental impacts are considered to the fullest extent possible under Section 111 of the Environmental Planning and Assessment Act.

The RTA will commence its detailed assessment once the aforementioned information is provided to its satisfaction. Should you require any clarification on this matter please call Chris Millet on 4221 2570.

Cheers

Chris Millet
Manager, Land Use Development Impacts
Southern Region
Roads and Traffic Authority

P - 4221 2570
F - 4221 2777

Before printing, please consider the environment.

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COUNCIL REFERENCE: 3A07/1008
CONTACT PERSON: J.Rippon
YOUR REF: 07_1003

Critical Infrastructure and Special Projects
Department of Planning
GPO Box 39
SYDNEY NSW 2001

DRAFT

Attention: Deana Burn

Dear Deana,

**Application 3A07/1008 Shoalhaven Starches- Expansion of Ethanol Production,
Property: No.160 Bolong Road, Bomaderry**

I refer to your letter dated 10th December 2007 concerning the abovementioned matter and wish to advise that Shoalhaven City Council has reviewed the submitted application and associated Environmental Assessment provided. As a consequence Council wishes to make a submission on the above proposal. A copy of this submission is attached for your information.

If you need further information about this matter, please contact Jessica Rippon, Senior Development Planner on 4429 3319. Please quote Council's reference 3A07/1008.

Yours faithfully

Tim Fletcher
Director
Development & Environmental Services Group

DRAFT

SUBMISSION TO THE NSW DEPARTMENT OF PLANNING PART 3A SUBMISSION ENVIRONMENTAL PLANNING & ASSESSMENT ACT, 1979

MAJOR PROJECT APPLICATION MP 07_0021

PROPERTY: 160 Bolong Road, Bomaderry

PROPOSAL: Proposed Upgrade of Ethanol Production

OWNER: Shoalhaven Starches

COUNCIL REFERENCE: 3A07/1008

MAJOR KEY ISSUES

1. Traffic & Transport

Traffic and transport comments are still being finalised by Council's traffic engineers, however the following comments made below relate to previous Part 3A applications that have been made on this site and are still applicable in this instance.

General Comments

Outstanding consent conditions are:

- Pedestrian footbridge south side Bolong Road across Abernethy's Creek (adjacent Manildra central access).

This was separate from the widening of culvert (Abernethy's Creek) on north side Bolong Road required to upgrade access to minimum Type A standard in accordance with RTA Road Design Guidelines. The intent of the pedestrian footbridge is to get Manildra staff and contractors off the road when traversing by foot between plant and office, or between plant and local businesses.

- Widening culvert (Abernethy's Creek) north side of Bolong Road adjacent to central access to ensure the minimum type BAR conditions are provided at the central access point.

Required to upgrade access to minimum Type A standard in accordance with RTA Road Design Guidelines, to avoid vehicle movements at the central access point blocking Bolong Road.

- Upgrade of western most access (construct driveway and seal road shoulder)

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Required to upgrade access to minimum Type B standard in accordance with RTA Road Design Guidelines. In urban area, this implies kerb, gutter and shoulder seal in conjunction with access upgrade. Manildra have undertaken the required kerb, gutter and shoulder seal works on southern side Bolong Road at this location, however have not upgraded the access which is still currently unsealed. This requires a concrete driveway construction and shoulder seal and sealed driveway to a point that prevents material build up on Bolong Road.

- Access improvements in Hannigans Lane (vegetation removal to improve sight distance)

Required to ensure minimum sight distances are available at the approved access points in accordance with RTA standards.

- Upgrade rail level crossing (provide boom gates and flashing light / bell assembly at rail crossing in accordance with current RTA standards)

Other Traffic Concerns:

Council does not support the use of Bomaderry local roads by heavy vehicles that do not have origin / destination in the Bomaderry local area. Council maintains that heavy vehicles (particularly from industry along Bolong Road) should be using Bolong Road and Princes Highway. To that extent Council was disappointed with previous conditions of consent issued by the Department allowing increased use of Bomaderry local roads by heavy vehicles generated by Manildra site. It is understood that this was a result of reporting that failed to address this issue, despite that issue being raised by Council at that time. It is understood that the reason for the condition related to the inadequate capacity of Bolong Road / Princes Highway intersection.

It is detailed within the environmental assessment that "the intersection of Bolong Road and Princes Highway is designed to allow an uninterrupted flow to northbound trips; they did therefore not identify and delays, but are affected by the coordinated traffic signals downstream at Illaroo Road"

Council disagrees with this statement, whilst there is uninterrupted flow to northbound trips, there is considerable delays to Bolong Road and Princes Highway traffic as a result of increased heavy vehicle traffic (East to North).

There is currently deficiency in right turn lane storage on Bolong Road approach to Princes Highway. The presence of one (1) heavy vehicle causes obstruction to the adjacent left turn lane on Bolong Road, which creates extended queuing in peak periods. Any increased heavy vehicle activity exacerbates this situation.

Council does not support additional heavy vehicle activity on Bomaderry local roads. Council maintains that heavy vehicles (particularly from industry along Bolong Road) should be using Bolong Road and Princes Highway, and that Princes Highway / Bolong Road intersection should be upgraded to allow increased capacity for right turn heavy vehicle traffic without detriment to capacity of other intersection movements.

DRAFT*Recommendations:*

- a) A condition of consent be imposed that requires the "applicant to enter into negotiations with the RTA with a view to negotiating a reasonable contribution towards the upgrade of Princes Highway / Bolong Road intersection to improve the capacity for right turn movements East to North" or similar. It is considered reasonable that the extent of contribution should be proportional to the impact of heavy vehicles on the capacity of the intersection.
- b) It is our strongest recommendation that all outstanding conditions of consent be addressed prior to proceeding with any further development of the site.
- c) Pursuant to the Director General's requirements which require additional traffic studies, surveys and analysis being undertaken, which identify existing (cumulative) impacts of the current proposal, it is requested that these studies surveys are provided to Council for review prior to approval.
- d) Comments on the management of traffic during the construction phase of the development have not been adequately addressed as part of the application. As there are serious safety concerns with traffic along Bolong Road specific conditions of consent which ensure safe traffic movements and parking conditions during the construction phase should be imposed in any issued development consent.

Train Impacts

Council is concerned that there will be an increase in the frequency of train movements to and from the site. Although the final report states that no increase in train movements will occur, previous draft reports prepared for the development had stated that some change in train numbers would occur. There is concern that train movements will increase and that the issues relating to such a potential increase have not been adequately addressed.

2. Flooding*Recommendations:*

- a) The development should comply with the 'Flood Related Development Controls' as detailed in Schedule 6 of Development Control Plan No. 106.
- b) A hydraulic assessment is to be carried out as part of any environmental assessment undertaken.
- c) Conditions of consent should require that the localised flooding impacts on other buildings within the complex and impacts on available flood storage should be assessed during the detailed design stage of the project.

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3. Noise

The comments regarding noise presented within the Preliminary Environmental Report are considered satisfactory subject to an operational acoustic assessment being prepared having regard to the DECC's Industrial Noise Policy.

Recommendation:

- a. An operational acoustic assessment is prepared as part of the environmental assessment undertaken for this development.

4. Acid Sulfate Soils

The development site is within an area identified as having a probability of containing acid sulphate soils by NSW Department of Land and Water Conservation (Soil Conservation Service - Acid Sulfate Soil Risk Map).

It is considered that the comments made as part of the draft Environment Assessment Report are considered adequate. However, if acid sulfate soils are identified during the course of excavation, work is to cease until the applicant lodges an acid sulphate soil management plan prepared by a suitably qualified person for approval by Council's Environmental Services Manager.

Recommendation:

- a) Measures are to be taken as required to minimise adverse environmental impact due to the release of acid to the environment (whether at the excavation site or elsewhere).

5. Potential Soil Contamination

Assessment of the potential contamination of the site should be carried out as part of the Environmental Assessment conducted as part of the project to ensure that the site is free from any potential harmful contaminants that may impact upon surrounding developments.

Recommendation:

- a. A preliminary contamination assessment is carried out as part of the environmental assessment for this project.

6. Erosion Controls

Currently the Manildra access road near the administration building on the western side of the railway line is unsealed. This road is and will be used by heavy transport vehicles and should be sealed to prevent dust generation and sediment laden storm water washing into Bomaderry Creek and flowing into the Shoalhaven River.

Recommendation:

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- a) Details of the proposed sediment and erosion controls that are to be installed to the satisfaction of the Council's Environmental Health Officer and DECC are to be provided as part of the environmental assessment report. It is expected that the erosion controls are to remain in place for the duration of construction works.
- b) That the sealing of the roadway is proposed as part of the environmental assessment undertaken for this project.

7. Cooling Towers and Legionnaire's Disease Control

Any air handling systems and cooling towers shall be designed, installed and maintained in accordance with the requirement of the Public Health Act 1991 (Part 4 Microbial Control) and Regulations. The applicant is required to register details of all regulated systems with Shoalhaven Council's Environmental Services Section.

Recommendation:

- a) Details of any air handling systems and cooling towers and the management of these systems are to be included as part of the environmental assessment for the proposed development.

Water and Sewerage

It is noted that the proposal includes the construction of a wastewater treatment facility on Shoalhaven Starches site. The proposal also includes the possible discharge of part of the effluent to Council's REMS and / or Council's licensed discharge to Shoalhaven River has been provided on the design.

Limited detail of the proposed treatment facility and the quality of the influent and effluent stream has been provided. Council would require detailed reports regarding these in order to assess the full implications on its operations.

It should be noted:-

- Council's REMS has been designed to cater for development in accordance with Council's DSP to year 2030 and this proposal was not included in that development. The inclusion of this proposal would greatly exceed the capacity of REMS and trigger extensive investigation and study requirements. It is also envisaged much of the existing REMS infrastructure would require augmentation.
- Council's commitment to the community that 80% of REMS water would be re-used could be jeopardized by the proposal. The significant volume and flow pattern of wastewater generated by the proposal would require a directional change for REMS management.
- Council's REMS is licensed by DECC with strict quality requirements for irrigation and ocean discharge.

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- Council has no remaining capacity in its discharge to Shoalhaven River during extended wet weather periods in accordance with its current licence with DECC.
- Section 64 charges in relation to the proposal would be applicable in some form.
- The proposal would be subject to the full requirements of Council's Trade waste Policy.
- Any proposed increase in water usage will be by agreement with Council in accordance with its policies and will be subject to appropriate pricing paths and infrastructure capacity.

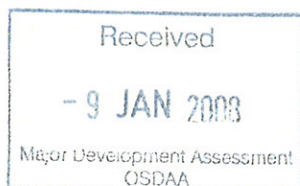
Recommendation:

- a) It is suggested that Shoalhaven Starches develop a strategy for total management of its liquid waste as per current Best Practice. It should be noted that this Development will have considerable impact on Shoalhaven Water's infrastructure and it is extremely important that full consultation is undertaken.



NSW Government

DEPARTMENT OF WATER AND ENERGY



Contact: Janne Grose
Phone: (02) 9895 7651
Fax: (02) 9895 7501
Email: Janne.Grose@dnr.nsw.gov.au

Deana Burns
NSW Department of Planning
GPO Box 39
Sydney
NSW 2001

Our ref: ERM07/0077603 & ER7528
File:
Your ref:

7 January 2008

Dear Ms Burns

Subject: Part 3A Project Application - Director General Requirements - Shoalhaven Starches, Proposed Ethanol Expansion

Thank you for your email of 19 December 2007 seeking the Department of Water and Energy's Director General's Requirements for Environmental Assessment of the proposed Shoalhaven Starches Ethanol Expansion.

Key issues of DWE's response are outlined in Attachment A and include that the Environmental Assessment (EA) needs to provide details on:

- whether any of the proposal is to be located near the banks of the Shoalhaven River and if so the EA needs to address river bank stability and options to stabilise the bank,
- the protection and rehabilitation of watercourses and riparian corridors at the site.

The Preliminary Environmental Assessment refers to discussions being held with Council for the re-use of waste water from this proposal within the REMS scheme. Please note that the Department considers that there are significant issues with the proposed re-use of waste water within the REMS scheme. However, the Department is not able to provide further comment on this until later in January 2008 when specialist staff return from leave.

I trust the attached DWE comments are of assistance to the Department of Planning in the preparation of Director General Requirements.

Contact Details

Should you have any queries in respect to this matter, please contact Jeff Hunt on (02) 4904 2634 at the Newcastle office or myself on (02) 9895 7651 at the Parramatta office.

Yours sincerely

Jeff Hunt
Senior Project Planner
Major Projects and Planning

**ATTACHMENT A****Part 3A Project Application - Director General Requirements
Shoalhaven Starches, Proposed Ethanol Expansion****Department of Water and Energy Issues**

The following comments are provided in relation to the Department of Water and Energy's natural resource issues concerning the Director General Requirements for the proposed Shoalhaven Starches Ethanol Expansion.

Protection and rehabilitation of the riparian corridors

Section 5.9 of the Preliminary Environmental Assessment (PEA) indicates that the bank of the Shoalhaven River adjacent to the Shoalhaven Starches factory site has a known history of recession (page 62). If any works associated with this major project are proposed within close proximity of the river bank, the EA should include an assessment of river bank stability and provide options for any remediation/bank enhancement. The Department agrees with the PEA that the options should also allow for the removal of exotic vegetation and weeds and incorporate the re-establishment of a diversity of local native species.

The former DIPNR has developed a stream classification system to identify minimum riparian corridor widths along watercourses. The Department's stream mapping work was initially developed for the Riparian Corridor Management Study (RCMS) in the Wollongong LGA. The RCMS process has since been widely adopted and applied to the NW and SW Growth Centres, other LGAs and land release sites. A form of the RCMS process has also been included in Landcom's Blue Book.

The Stream classification uses three categories which reflect the environmental significance of watercourses.

The minimum widths to achieve the riparian categories are as follows:

Category 1 – Environmental Corridor (Red)

- Purpose: to protect and enhance ecological connectivity between key remnant native vegetation within and between catchments and achieving all four key objectives for riparian corridors.
- Minimum width : a CRZ width of 40 metres (measured from the top of bank) along both sides of the watercourse + a 10 metre vegetated buffer

Category 2 – Terrestrial and Aquatic Habitat (Green)

- Purpose: to provide for a viable and robust node or reach of riparian habitat (both aquatic and terrestrial) and would achieve key objectives 1-3 for riparian corridors.
- This habitat does not necessarily provide connectivity to other key remnant native vegetation due to constraints from existing development.
- Minimum width: a CRZ width of 20 metres (measured from the top of bank) along both sides of the watercourse + a 10 metre vegetated buffer.

Category 3 – Bank Stability and Water Quality (Blue)

- Category 3 recognises the critical role of riparian vegetation for stabilising the bed and banks of watercourses and filtering catchment run-off (ie key riparian corridor objectives 1

and 2) and the contribution this makes to overall catchment health and retention of land (eg protection of property and assets).

- Minimum width: a CRZ width of 10 metres (measured from the top of bank) along both sides of the watercourse (generally no buffer is required)

Category 3 objectives and outcomes are generally fundamental to all waterways. Category 2 builds upon the objectives and management principles for Category 3, and Category 1 builds upon objectives and management principles for Category 2.

Please note, the above riparian widths are minimum widths and opportunities for achieving greater corridor widths are encouraged. Additional width may be required for geomorphological and environmental considerations (eg to protect and enhance remnant native vegetation adjacent to the riparian corridor and biodiversity). The riparian corridors should be protected and/or enhanced with native riparian vegetation.

Stream Mapping at Shoalhaven Starches site

The Department has undertaken desk top categorisation of the watercourses at the site and the stream categories are listed below:

Shoalhaven River	Category 1 watercourse
Bomaderry Creek	Category 1 watercourse
Broughton Creek	Category 1 watercourse
Abernethy's Creek	Category 2 watercourse

The Environmental Assessment report needs to clearly identify on a scaled plan view the location of the proposed development in relation to:

- a. the watercourses on the site;
- b. top of bank along the watercourses;
- c. riparian corridor boundaries, including the Core Riparian Zone (CRZ), Vegetated Buffers and Asset Protection Zones [The CRZ widths are to be consistent with the minimum widths recommended by DWE above];
- d. existing riparian vegetation distinguishing between endangered ecological communities (EEC) and non-EEC areas;
- e. those parts of the CRZ and the Vegetated Buffers needing to be revegetated; and
- f. river bank stabilisation options.

