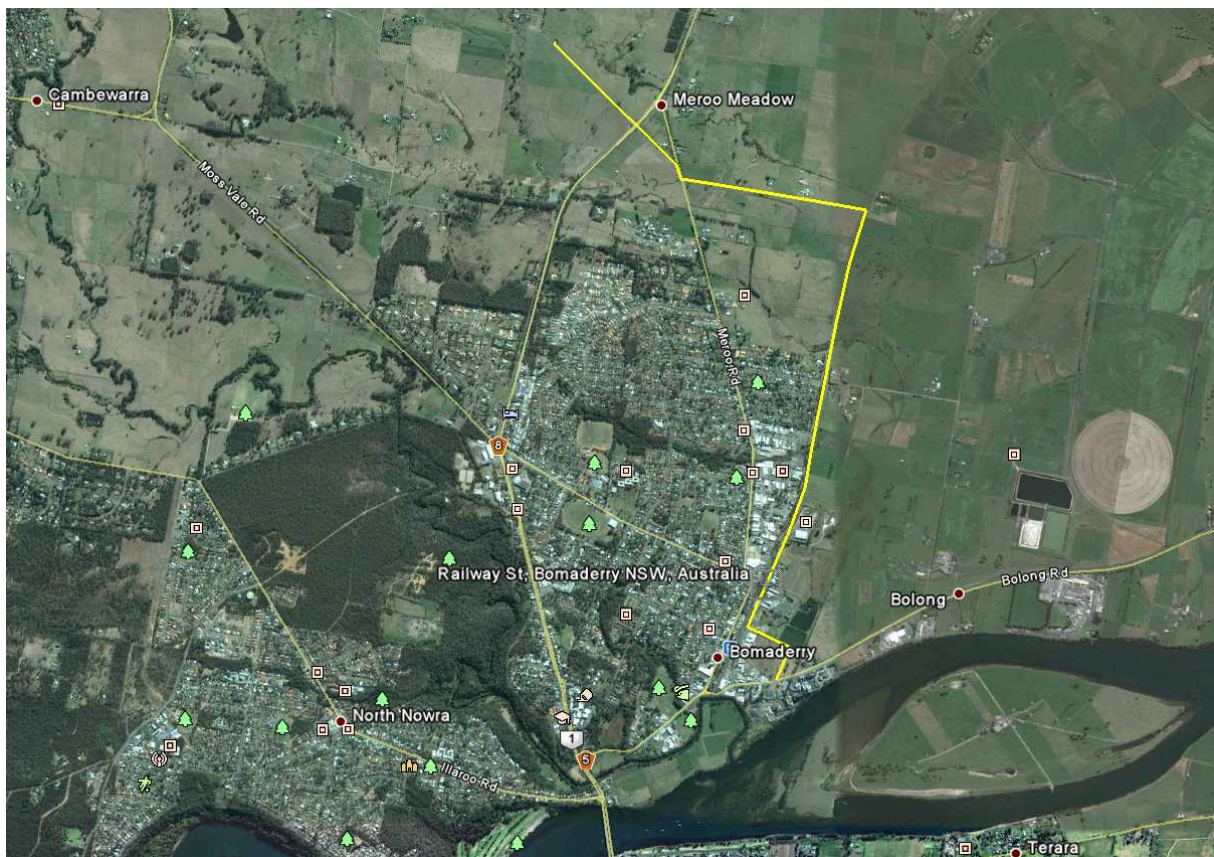




**MAJOR PROJECT ASSESSMENT:  
Shoalhaven Starches Gas Pipeline  
Project (MP 10\_0108)**



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

October 2012



Cover photo: Aerial overview of the Shoalhaven Starches Gas Pipeline Route  
Inside photo: Aerial view of the Shoalhaven Starches Plant at Bomaderry

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# EXECUTIVE SUMMARY

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Shoalhaven Starches Pty Ltd (Starches) proposes to construct a 5.5 km long private pipeline to connect the Shoalhaven Starches factory directly into the Eastern Gas Pipeline (EGP).

As Starches increases ethanol production in accordance with the Ethanol Expansion Project (MP 06\_0228) approved by the then Minister in 2009, there will be a significant increase in the consumption of all energy sources at the factory.

In particular, natural gas consumption is expected to increase significantly from 1,158,000 Gigajoules per annum (GJ/a) to 6,800,000 GJ/a, an increase of approximately 587%.

By constructing the pipeline, Starches would be able to seek an improved cost of supply of gas to the factory by taking advantage of competition between various gas retailers who supply gas to the EGP.

The proposal is permissible with consent in the 1(a), 1(b), 4(a) and 4(e) zones under the *Shoalhaven Local Environmental Plan 1985*. However, some parts of the pipeline located in the areas zoned 1(g) and 5(b) would be prohibited. To overcome this permissibility issue, Starches has sought concept plan as well as project approval.

The concept and project applications both seek approval for a private gas pipeline to connect Shoalhaven Starches to the EGP. The concept application seeks to address the issue of permissibility and the project application seeks approval to allow for the construction and operation of the gas pipeline.

The project has a capital investment value of approximately \$6 million and is expected to generate up to 25 construction and 3 operational jobs.

The proposal is classified as a Major Project under Part 3A of the *Environmental Planning & Assessment Act 1979* (EP&A Act), as it includes development for the purpose of a pipeline that requires a licence under the *Pipelines Act 1967* (Pipelines Act) and is subject to an application for a licence under the Pipelines Act. As Starches has made reportable political donations, the concept and project applications will be determined by the Planning Assessment Commission.

As the Environmental Assessment (EA) for the project was lodged prior to 1 October 2011, the project is a transitional Part 3A Project.

The Department exhibited the EA from Friday 20 April 2012 until Wednesday 23 May 2012, and received 8 submissions: 6 from government agencies and 2 from the general public.

Submissions raised concerns mainly in relation to noise, visual, soil and water impacts.

The Department has assessed the merits of the concept and project applications in accordance with the requirements of the EP&A Act.

This assessment has concluded that the concept application is consistent with the relevant zoning objectives (despite the minor prohibition), environmental and special provisions of the *Shoalhaven Local Environmental Plan*. In terms of the project application, the Department's assessment found that the project is potentially hazardous and would result in some noise, soil and water impacts during construction. However, the Department is satisfied that with the implementation of the recommended conditions of approval, the impacts of the project can be adequately mitigated and/or managed to ensure an acceptable level of environmental performance.

It has also found that the project would allow Starches to seek an improved cost of supply of natural gas, reduce operating costs and greenhouse gas emissions by providing financial incentive to reduce reliance on coal as an energy source at the Bomaderry factory. The project would also contribute to the long-term financial viability of these operations therefore ensuring local job security.

Consequently, the Department considers that the benefits of the project outweigh the costs and it is therefore in the public interest and should be approved, subject to conditions.

# 1. BACKGROUND

## 1.1 Existing Operations and Surrounding Land Uses

Shoalhaven Starches Pty Ltd (Starches), a subsidiary of the Manildra Group, operates a wheat product and ethanol production factory at Bomaderry in the Shoalhaven local government area (see Figure 1).



Figure 1: Shoalhaven Starches Factory and Environmental Farm

The factory is located on a 12.5 hectare (ha) site on the southern side of Bolong Road and northern bank of the Shoalhaven River. The site is approximately 500 metres (m) from Bomaderry and 2 kilometres (km) north east of Nowra, and is located within an industrial precinct with neighbouring facilities including the Bomaderry Wastewater Treatment Plant, the Shoalhaven Paper Mill, Cleary Bros Cement and numerous smaller industrial premises. The nearest residences are located approximately 200m to the north-west of the factory on the border of the Bomaderry industrial precinct.

The factory began operating in 1979 to produce starch, gluten and glucose products from wheat and sorghum supplied from Manildra Group mills in Manildra, Gunnedah and Narrandera. These products are used in the food, paper and brewing industries. Since 1992 the factory has also produced ethanol from waste starch for use in the motor transport industry, and the by-product dried distillers grain (DDG) for use as livestock feed.

The factory produces a significant amount of wastewater which is treated at Starches wastewater treatment plant and disposed of via spray irrigation on their nearby 'environmental farm' (see Figure 1).

## 1.2 Existing Approvals

The factory primarily operates under a planning approval issued by the then Minister in 2009 for the Ethanol Expansion Project (MP 06\_0228, see detail below). However, the Department was recently made aware that Shoalhaven City Council has also issued at least two consents (for an interim product packaging plant and road works) to Starches since 2009.

The operations are also regulated by the Environment Protection Authority (EPA) under the *Protection of the Environment Operations Act 1997* (POEO Act) through Environmental Protection License (EPL) No. 883.

## 1.3 Environmental Performance

The factory has a history of odour problems. In 2006, Starches was prosecuted in the Land and Environment Court. The company was fined and required to undertake a comprehensive audit of all odour sources at the premises to identify options to prevent or treat odours.

This odour audit (conducted in 2007) found that emissions from the factory and Environmental Farm substantially exceeded relevant odour criteria at rural residences near the Environmental Farm and at residences in Bomaderry and the northern fringes of Nowra.

The audit recommended that odour could be minimised through a number of measures. These measures, together with a proposed expansion in ethanol production, formed the basis for the Ethanol Expansion Project (MP 06\_0228), which was approved by the then Minister for Planning in 2009.

Under the terms of the 2009 approval, Starches could only increase ethanol production in stages, with Stage 1 allowing expansion from 126 to 200 megalitres (ML) a year and Stage 2 allowing an increase from 200 to 300 ML a year. The conditions required the Director-General's approval prior to any increase in ethanol production.

Prior to increasing any production, Starches was required to demonstrate that mandatory odour controls were in place (as listed in the approval). Starches was also required to undertake independent odour audits and odour assessment of the likely odour impacts (including monitoring results and predictive modelling) of the factory with ethanol production at 200 and 300 ML a year. Key odour controls included:

- a biological wastewater treatment plant on the Environmental Farm; and
- numerous odour control measures within the factory, including a bioscrubber at the DDG plant.

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

#### **1.4 Project Background**

At present, Starches use a range of energy sources in its operations including coal, natural gas, diesel and electricity at the Bomaderry factory.

As Starches increases ethanol production in accordance with the Ethanol Expansion Project (MP 06\_0228), there will be a significant increase in consumption of all energy sources at the factory.

In particular, natural gas consumption is expected to increase significantly from 1,158,000 Gigajoules per annum (GJ/a) to 6,800,000 GJ/a, an increase of approximately 587%. This is predominantly because the ethanol expansion project included a cogeneration facility that is powered by natural gas and biogas captured from wastewater treatment to produce electricity.

At present, natural gas is supplied to the site by a private gas pipeline owned and operated by ActewAGL (AGL) which is connected to the Eastern Gas Pipeline (EGP) at a point at Meroo Meadow to the north east of the factory (see Figure 2). The EGP is a 797km long pipeline owned by Jemena which transports natural gas from the Gippsland Basin in Victoria to markets in Sydney and a number of regional centres including Bomaderry, Wollongong and Canberra.

The private ownership of the AGL pipeline connecting to the EGP means AGL has a monopoly on the supply of gas to Starches factory and surrounding industries in Bomaderry.

Given the significant increase in demand on gas as a result of the ethanol expansion project and the Commonwealth's Clean Energy Legislative Package and carbon pricing mechanism commenced on 1 July 2012, Shoalhaven Starches has been investigating ways in which it can reduce its energy costs.

To overcome the current situation with respect to gas supply to the site, Starches is now proposing to construct its own 5.5 km long private pipeline to connect the Starches factory directly into the EGP. This is known as the Starches Gas Pipeline Project (see Section 2 of this report below).

By undertaking this project, Starches would be able to gain direct access to the EGP. As a result, Starches would be able to seek an improved cost of supply of gas to the factory. This is expected to save Starches in the order of \$3.5 million a year.

## 2. PROPOSED CONCEPT AND PROJECT

### 2.1 Concept and Project Description

The concept and project applications both seek approval for a private gas pipeline to connect Shoalhaven Starches to the EGP. The concept application seeks to address the issue of permissibility and the project application seeks approval to allow for the construction and operation of the gas pipeline.

The major components of the concept and project applications are summarised in Table 1, and depicted in Figures 2 and 3. The project is described in full in Cowman Stoddart's Environmental Assessment (EA), which is attached as Appendix F.

Table 1: Major Components of the Project

Aspect	Description
Summary	Starches are seeking approval to construct and operate a gas pipeline approximately 5.5km in length to service the Shoalhaven Starches factory at Bomaderry.
The Gas Pipeline	<p>The new pipeline would run east south-east from a connection point at the existing Eastern Gas Pipeline (EGP) at Pestells Lane, Meroo Meadow to the Starches site at Bolong Road, Bomaderry. The pipeline route is illustrated in Figure 2 below. The new pipeline would stop just inside the boundary of the Starches site and connect into the existing reticulation system.</p> <p>The pipeline would generally be buried to a minimum depth of 750mm below ground, except under road and rail reserves where the minimum depth would be 1,200mm. The construction trench would be approximately 660mm wide (except at tie-in points where additional room for welders would be required) and installation would progress at approximately 500m to 800m a day. Figure 5 provides a typical cross section of the pipeline, once buried.</p> <p>The new piping would be designed to comply with the relevant Australian Standards with a maximum design pressure of 16,550 kilopascals (kPa) and an external diameter of approximately 169.3 millimetres (mm).</p> <p>No trenching would be required at road, rail or creek crossings as underboring would be utilised in these areas so that the pipeline passes under with minimal disturbance. There would be no change to the existing AGL pipeline which would remain in place to continue to serve domestic requirements for the area north of the Shoalhaven River as well as the Shoalhaven Paper Mill.</p>
Supporting Pipeline Infrastructure	<ul style="list-style-type: none"> <li>• Meter station on a skid approximately 3m by 10m adjacent to the existing meter station at the current EGP connection point (see Figures 2 and 3);</li> <li>• Gas filter, flow meter, emergency shut-down/isolation valves; and</li> <li>• Other ancillary infrastructure (e.g. for power supply).</li> </ul>
Pressure Reduction Facility and Associated Infrastructure	<p>A pressure reduction facility would be installed at the end of the pipeline (opposite the Starches Factory on the northern side of Bolong Road) on Starches owned land (Lot 16 DP 1121337, see Figure 2) to reduce gas pressure from approximately 10,000 to 3,500 kPa as required by Starches. Supporting infrastructure would include:</p> <ul style="list-style-type: none"> <li>• A skid approximately 3m by 9m and 2m above ground;</li> <li>• Gas heater (i.e. water bath type); and</li> <li>• Other ancillary infrastructure including pressure control valves.</li> </ul> <p>The pressure reduction station would be similar to the existing station at Pestells Lane.</p>
Construction Right of Way (ROW)	A 5-7m wide by 10-12m long temporary construction ROW will be required at various points along the pipeline route to allow for the transportation of construction equipment during installation. In addition, a temporary workspace approximately 20m wide by 40m long will be required near the ROW at each side of major watercourse, road and rail crossings.
Hours of Operation	<p><u>Construction</u></p> <ul style="list-style-type: none"> <li>• 7.00 am to 5.00 pm (Monday to Friday);</li> <li>• 8.00 am to 1.00 pm (Saturdays); and</li> <li>• No work on Sunday or Public Holidays.</li> </ul> <p><u>Operation</u></p> <ul style="list-style-type: none"> <li>• 24 hours, 7 days a week.</li> </ul>
CIV	\$6 million
Employment	<ul style="list-style-type: none"> <li>• 25 full-time during construction</li> <li>• 3 full-time during operation</li> </ul>
Construction	10 weeks

### 2.2 Project Setting

The proposed pipeline would cross underneath 4 minor watercourses (see Figure 7), approximately 4 roads (including 1 major road being the Princes Highway) and 2 railway lines (1 being Starches privately owned railway line and the other RailCorp's main south coast line).

However, for the majority of its length, the proposed pipeline would be located alongside rural road reserves owned by Council and adjacent to farmland (see Figure 2). These constitute small (some unsealed) rural roads with low volumes of traffic. The rural context of the proposed pipeline is typified by Figure 3 at Pestells Lane.

The distance between the proposed pipeline construction works and the nearest residents would vary along the route, but would be within approximately 40m to 50m in some instances (worst-case) along Edwards Avenue (see Figure 4).

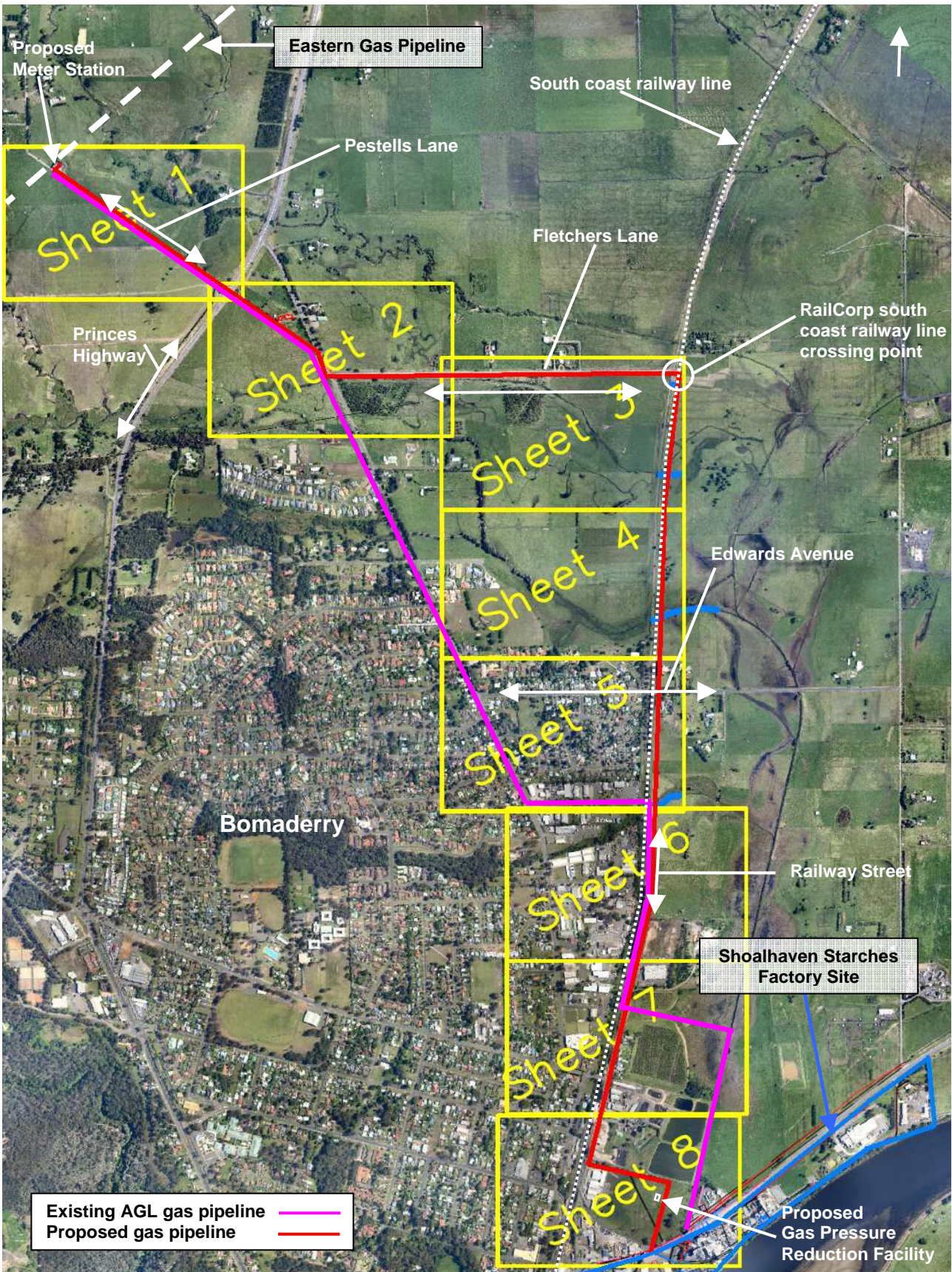


Figure 2: Indicative overview of the proposed Shoalhaven Starches gas pipeline route

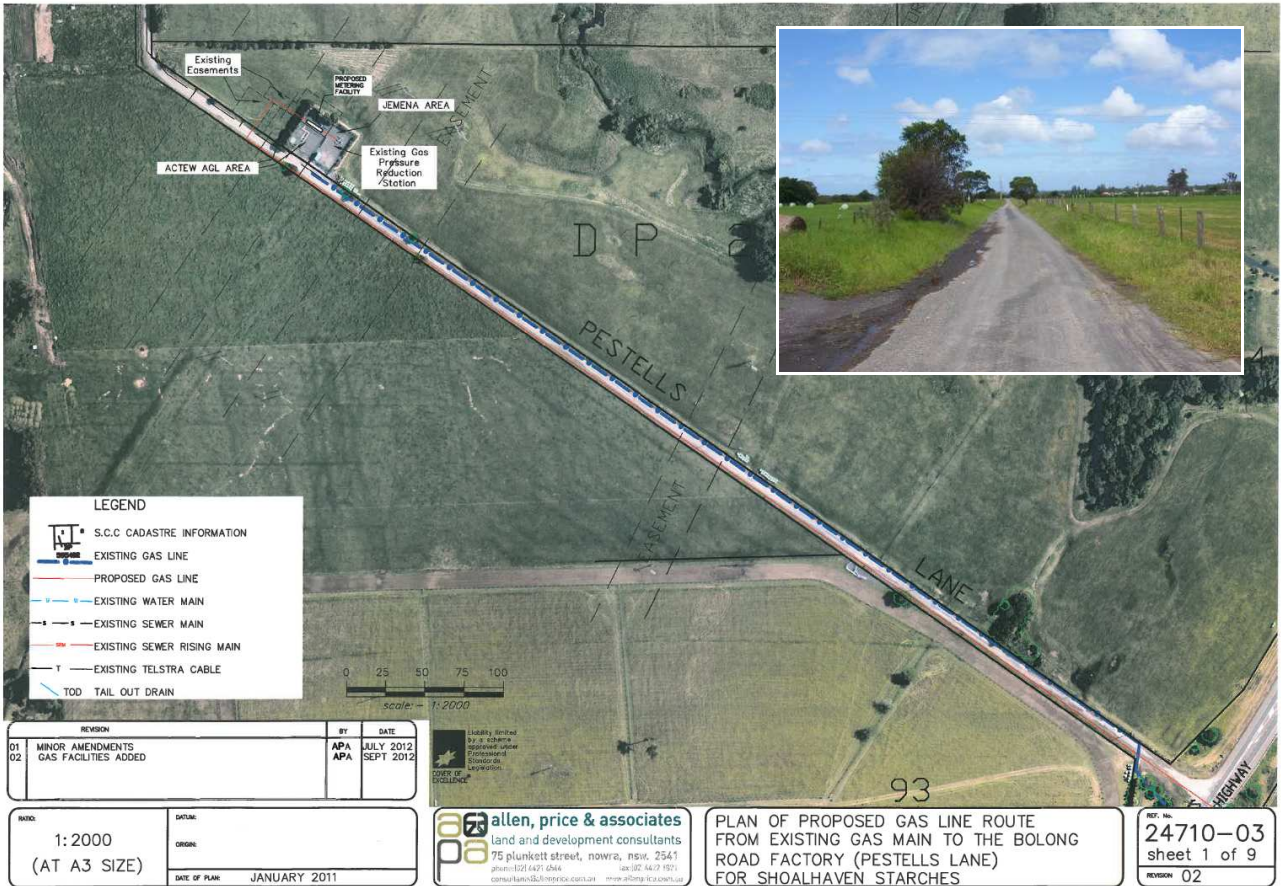


Figure 3: Sheet 1 of the proposed pipeline route (Pestells Lane)

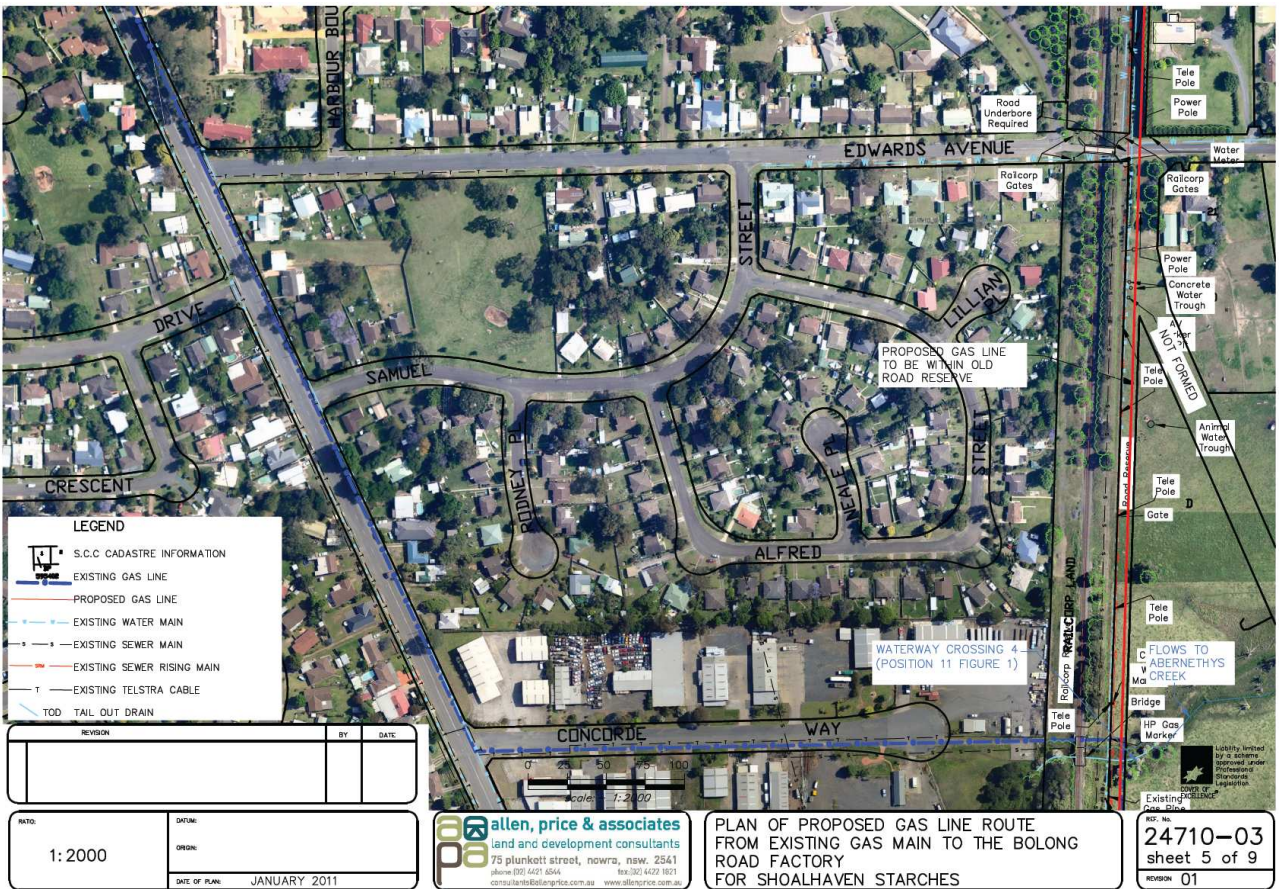


Figure 4: Sheet 5 of the proposed pipeline route (Edwards Avenue)



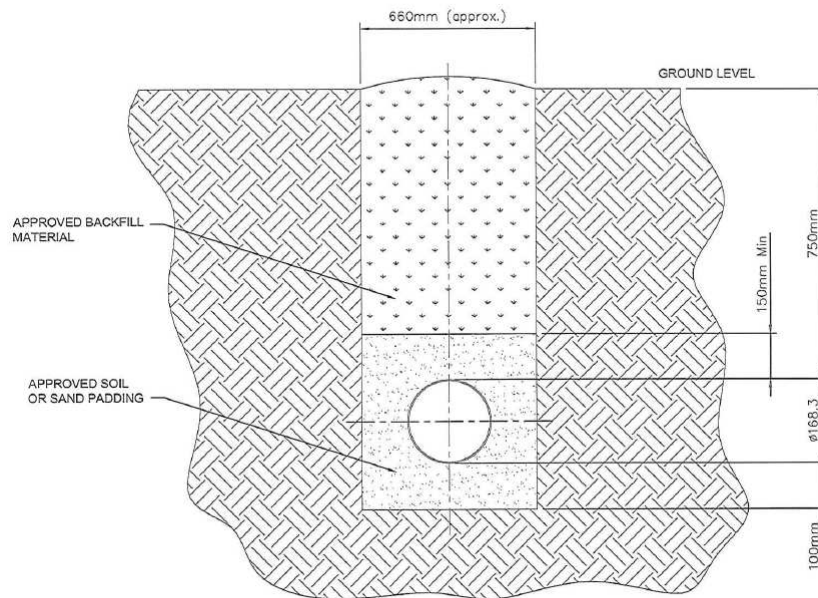


Figure 5: Typical cross section of the pipeline, once buried

### 2.3 Project Staging

It is anticipated that the project would be constructed in four key stages, as outlined in Table 2 below.

Table 2: Project construction schedule

Week	Description of work
1 - 2	Mobilisation, safety inductions, third party easement location
3 - 7	Pipeline installation (e.g. stringing, excavating, welding, lowering in, pressure reduction station construction and connection, backfill, hydrotesting works - undertaken concurrently at multiple locations along the pipeline route)
8 - 9	Right-of-way restoration, begin demobilization
10	Demobilisation complete

## 3. STATUTORY CONTEXT

### 3.1 Major Project

The proposal is classified as a Major Project under the now repealed Part 3A of the *Environmental Planning & Assessment Act 1979* (EP&A Act), as it includes development for the purpose of a pipeline that requires a licence under the *Pipelines Act 1967* (Pipelines Act) and is subject to an application for a licence under the Pipelines Act.

### 3.2 Continuing Operation of Part 3A

Part 3A of the EP&A Act, as in force immediately before its repeal on 1 October 2011 and as modified by Schedule 6A to the Act, continues to apply to transitional Part 3A Projects. Director-General's environmental assessment requirements (DGRs) were issued in respect of this Project prior to 1 October 2011, and the Project is therefore a transitional Part 3A Project.

Consequently, this report has been prepared in accordance with the requirements of Part 3A and associated regulations, and the Minister (or his delegate) may approve or disapprove of the carrying out of the Project under section 75J of the Act.

### 3.3 Approval Authority

Under the EP&A Act the Minister is the approval authority for a major project. However, as reportable political donations were made by Starches in respect of the application, the application must be determined by the Planning Assessment Commission in accordance with the Minister's Instrument of Delegation, dated 14 September 2011.

### 3.4 Permissibility

The preferred pipeline route would traverse areas zoned No 1(a) (Rural "A" (Agricultural Production), No 1(b) (Rural "B" (Arterial and Main Road Protection), No 1(g) (Rural "G" (Flood Liable), No 4(a) (Industrial "A"

(General), No 4(e) (Industrial "E" (Restricted Development Zone) and No 5(b) (Special Use "B" Railway Zone) under the *Shoalhaven Local Environmental Plan 1985* (Shoalhaven LEP).

The proposal is permissible with consent in the 1(a), 1(b), 4(a) and 4(e) zones. However, some parts of the pipeline located in the areas zoned 1(g) and 5(b) would be prohibited.

To overcome this permissibility issue, Starches has sought concept plan approval. Starches concluded that the authorisation of a concept plan is preferable to a rezoning, as it allows the consideration of the merits of overriding the prohibition to be undertaken concurrently with the assessment of the merits of the proposal as a whole.

The Department agreed that the authorisation of a concept plan would allow a more streamlined process, thereby removing the need for a separate rezoning application with Shoalhaven City Council (Council). Further, the Department is satisfied that the project can be conducted in a manner that is consistent with the relevant zoning objectives, environmental and special provisions of the LEP (see Appendix B). The intent of these provisions has been considered in detail by the Department in its assessment of the project (see section 5 of this report).

In addition, Council supported the process, in principle, but considered that a number of matters in relation to the location of the pipeline in Council's road reserves would need to be addressed as part of the detailed assessment of the project.

Subsequently, on 8 September 2010, the then Minister authorised the submission of a concept plan for the project under Section 75M of the EP&A Act.

The Department's detailed merit assessment of the project is contained in Section 5 of this report.

### 3.5 Other Approvals

Under Section 75V of the EP&A Act, a number of further approvals are required to be obtained, and must be approved in a manner that is consistent with any Part 3A approval for the project.

In this case, the Project requires:

- a license under the *Pipelines Act 1967*; and
- a consent under section 138 of the *Roads Act 1997* (Roads Act).

In addition, Starches may need to obtain a separate approval under the *Water Act 1912* (Water Act) if groundwater extraction is required during construction.

The Department has consulted with Shoalhaven City Council, the Department of Trade and Investment, Regional Infrastructure and Services (DTIRIS), Roads and Maritime Services (RMS) and the NSW Office of Water (NOW) and considered the relevant issues relating to the above approval requirements in the assessment of the Project (see Section 5 of this report).

### 3.6 Exhibition and Notification

Under Section 75H(3) of the EP&A Act, the Director-General is required to make the Environmental Assessment (EA) of the project publicly available for at least 30 days.

After accepting the EA for the project, the Department:

- made it publicly available from **Friday 20 April 2012** until **Wednesday 23 May 2012**:
  - on the Department's website;
  - at the Department's Information Centre (Bridge Street Office, Sydney);
  - at the Department's Regional Office in Wollongong;
  - Shoalhaven City Council's Administration Centre; and
  - the Nature Conservation Council;
- notified landowners in the vicinity of the site about the exhibition period by letter;
- notified relevant State government authorities and Shoalhaven City Council; and
- advertised the exhibition in the Shoalhaven and Nowra News and the South Coast Register.

This satisfies the requirements in section 75H (3) of the EP&A Act.

During the assessment process, the Department also made a number of documents available for download on the Department's website. These documents included the:

- project application;
- Director-General's environmental assessment requirements;
- EA;
- submissions received; and

- Starches response to those submissions (RTS).

### 3.7 Environmental Planning Instruments

Under Section 75I of the EP&A Act, the Director-General's report is required to include a copy of, or reference to, the provisions of environmental planning instruments that substantially govern the carrying out of the project.

The Department has considered the project against the relevant provisions of several key environmental planning instruments including:

- *State Environmental Planning Policy (Major Development) 2005* (the Major Development SEPP);
- *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP);
- *State Environmental Planning Policy No. 14 – Coastal Wetlands* (SEPP 14);
- *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development* (SEPP 33);
- *State Environmental Planning Policy No. 44 – Koala Habitat Protection* (SEPP 44);
- *State Environmental Planning Policy No. 55 – Remediation of Land* (SEPP 55);
- *State Environmental Planning Policy No. 71 – Coastal Protection* (SEPP 71);
- *State Environmental Planning Policy (Rural Lands) 2008* (Rural Lands SEPP);
- *South Coast Regional Strategy*;
- *Illawarra Regional Environmental Plan No. 1*; and
- *Shoalhaven Local Environmental Plan 1985*.

The Department is satisfied that, subject to the implementation of the recommended conditions of approval, the project is generally consistent with the aims and objectives of these instruments (see consideration of these instruments Appendix B).

### 3.8 Objects of the *Environmental Planning and Assessment Act 1979*

In determining the application, the Minister should consider whether the project is consistent with the relevant objects of the EP&A Act.

The Department has fully considered the objects of the EP&A Act, including the encouragement of ESD, in its assessment of the application. The Department considers that objects 5(a) (ii), (iii), (vi) and (vii) are relevant to the merit assessment of this application.

The Department considers that the project represents an orderly and economic use of the land for the provision of improved utility services (i.e. a private gas pipeline to supply the Starches factory). The Department's assessment in Section 5 of this report has found that the project is potentially hazardous and would result in some noise, soil and water impacts during construction. However, the Department is satisfied that the impacts of the project can be adequately mitigated and/or managed to ensure an acceptable level of environmental performance. Similarly, the Department considers that through an emphasis on avoidance of impacts, careful design, management and mitigation measures, the project would not impact on any important ecological areas, threatened ecological species or communities and is consistent with the principles of ESD.

The Department is therefore satisfied that the project is generally consistent with the relevant objects of the EP&A Act.

## 4 ISSUES RAISED IN SUBMISSIONS

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During the exhibition period, the Department received a total of 8 submissions on the project: 6 from public authorities and 2 from the general public.

A summary of the issues raised in submissions is provided below. A full copy of these submissions is attached in Appendix D.

### 4.2 Public Authorities

**Shoalhaven City Council (Council)** raised some concern regarding the preferred location of a section of the pipeline in Pestells Lane, requested clarification on the exact location of the pipeline noting some mapping inconsistencies in the EA and potential impacts on Council infrastructure (e.g. water and sewer mains) in road reserves. Council recommended conditions of approval in relation to noise, vibration, water and pipeline design.

**The Environment Protection Authority (EPA)** recommended the Proponent be required to apply all reasonable and feasible mitigation measures to manage construction noise and vibration impacts including notification of potentially affected residents. The EPA also suggested the project be limited to standard construction hours.

**The Office of Environment and Heritage (OEH)** noted that no new Aboriginal objects were located during surveys which was consistent with other studies undertaken at the site. The OEH recommended the Proponent be required to prepare an Aboriginal Heritage Management Plan for the project to manage any unexpected finds.

**Roads and Maritime Services (RMS)** noted the Proponent must obtain consent from RMS under Section 138 of the *Roads Act 1993* for the project and meet the specific design requirements of RMS for any works proposed on the classified road network. RMS recommended conditions of approval to this effect.

**RailCorp** noted some minor errors in the EA and recommended a number of conditions of approval to ensure that the project does not impact upon any rail infrastructure.

**The Department of Primary Industries (DPI)** recommended measures to ensure the project does not impact on water quality, riparian zones (NSW Office of Water, NOW) or aquatic habitats (NSW Fisheries) and requested clarification regarding the impact of the pipeline on crown lands, local groundwater and wetland/riparian vegetation. DPI also noted Starches has applied for a licence with the New South Wales Department of Trade and Investment, Regional Infrastructure and Services (DTIRIS) under the *Pipelines Act 1967*.

**The Department** also requested additional information from Starches in relation to landowners consent, construction noise, hazards and risk.

#### **4.3 General Public**

The two (2) submissions received from the general public did not object to the project but raised a number of concerns about the potential impacts of the project including:

- impacts (e.g. noise) on show horses in nearby paddocks;
- the design of the pipeline and subsequent impacts on visual amenity, stormwater, flooding and trees in road reserves; and
- the potential for road damage caused during construction.

#### **4.4 Response to Submissions**

On 5 July 2012, Starches provided a response to the issues raised in submissions (see Appendix C), as well as a revised Statement of Commitments for the project.

In particular, the response to submissions report (RTS) included:

- a copy of all landowners consents;
- a supplementary noise assessment;
- further detail on the location and design of the pipeline in Pestells Lane;
- revised cadastral plans for the pipeline route;
- further detail on the proposed method for underboring waterways including a plan; and
- a revised statement of commitments (SoCs) for the project.

The RTS has been made publicly available on the Department's website.

The Department has considered the issues raised in submissions, and Starches responses to these issues, in its assessment of the project.

## **5 ASSESSMENT**

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The Department has considered the EA, the issues raised in submissions, and Shoalhaven Starches (Starches) response to these issues, in its assessment of the project. The Department considers the key issues to be the potential hazards and risk, noise and vibration impacts during construction, soil contamination, and water impacts. All other issues are considered to be minor and are addressed in Table 3.

## 5.1 Hazards and Risk

### *Issue*

The project is a 'potentially hazardous industry', as defined by *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development (SEPP 33)*.

### *Consideration*

A review of the hazards and risks associated with the proposed pipeline was carried out by URS Australia, in conjunction with Planager Risk Management Consultants Pty Ltd and Pinnacle Risk Management Pty Ltd.

The pipeline was identified as being potentially hazardous and a Preliminary Hazard Analysis (PHA) was prepared and submitted as part of the EA.

The Department is satisfied that the methodology applied to estimate risks in the PHA is consistent with *Hazardous Industry Planning Advisory Paper (HIPAP) No. 6 - Hazardous Analysis*.

Initially, a Hazard Identification (HAZID) was undertaken to identify the hazards relevant to the operation of the pipeline.

As a result of the HAZID, modifications were made to the selected route (to avoid areas of risk sensitivity such as schools and aged-care facilities) and to the pipeline design to reduce the likelihood of failure.

The analysis identified, and Starches has committed to, implementing the following risk mitigation measures:

- corrosion protection devices;
- heavier wall thickness at road crossings;
- concrete slab protection in areas of high vulnerability;
- marker tape above the pipe;
- increased pipeline burial depth at selected locations; and
- additional protection at the proposed gas metering station at the existing EGP connection point.

Following the above, a hazard analysis was undertaken to estimate the risks posed by the pipeline to the surrounding land uses.

The main hazard associated with the project is from possible leaks of natural gas from the pipeline, potentially leading to fire and/or explosion. All potential hazardous events and their consequences were assessed in the PHA using a qualitative risk matrix.

In terms of any potential impacts from the identified events, the PHA found that only two locations along the pipeline route required further risk assessment. These are:

- (a) a tanker truck parking area located approximately 60m from the proposed pipeline at 1B Cambewarra Road, Bomaderry; and
- (b) some above ground diesel storage tanks located approximately 100m from the proposed pipeline at 14 Concord Way, Bomaderry.

A detailed quantitative risk assessment was undertaken to estimate the risks at these two industrial locations. The assessment determined that the risk from the pipeline would be below the Department's land use safety risk criteria for these land uses.

The Department is satisfied that the proposed pipeline will not pose a significant risk, and the Proponent has demonstrated that it would comply with all risk criteria adopted in NSW for new developments.

Notwithstanding, to ensure safe operation throughout the life of the facility, the Department has recommended a number of hazards-related conditions of approval (pre-construction, pre-commissioning, pre-startup, post-startup and on-going) to ensure safe operation throughout the life of the facility. This includes conditions which would require Starches to:

- undertake a Construction Safety Study, Final Hazards Analysis and Hazard and Operability Study consistent with the Department's relevant guideline/s;
- prepare and implement an Emergency Plan (EP) and Safety and Operating Plan (SAOP) for the project;
- submit Pre and Post-Startup Compliance Reports detailing compliance with all conditions required to be satisfied prior to and after operation has commenced; and
- undertake on-going reviews of the SAOP for the project to ensure safety and compliance with all statutory requirements.

## Conclusion

Based on the information provided in the PHA, and assuming all safeguards and recommendations of the PHA are implemented (as committed to by Starches) along with the Department's recommended conditions of approval, the Department is satisfied that the project would not pose an unacceptable risk to surrounding land uses.

## 5.2 Noise and Vibration

### Issue

The project would result in construction noise impacts above the relevant criteria that are likely to cause disruption to residential amenity, if not appropriately managed.

### Consideration

The EA for the project contains a noise and vibration assessment carried out by Day Design Pty Ltd (Day Design) (see Annexure 16 of Appendix E). A supplementary noise assessment was also provided by Day Design in the RTS to address the Department's request for details of further noise mitigation and management measures to reduce the construction noise impacts of the project.

### Noise

Construction works associated with the project would be short term (approximately 10 weeks). The distance between pipeline construction works and residences would vary along the route, but would be within approximately 40m to 50m of residents (worst-case scenario) in some instances along Edwards Avenue (see Receptor Area 4 in Figures 4 and 6).

The construction noise criteria for the project were determined in accordance with the EPA's *Interim Construction Noise Guideline* (ICNG) by measuring the rating background noise level (RBL) and adding 10dBA. This is known as the noise management level (NML) and differed depending on the receptor area and measured RBL (see Figure 6). The key sources of noise identified included the trenching, rock hammering (if required), drilling and loading.

Day Design's noise assessment found that the nearest and most affected residences would be those located in proximity to Edwards Avenue at Receptor Area 4 (see Figure 6). These residences were predicted to experience noise levels up to 80dBA from construction works (ie. 40dBA above the ICNG NML).

The Department considered this impact to be unacceptable because there would be large scale exceedances of the applicable noise criteria that could also result in adverse impacts.

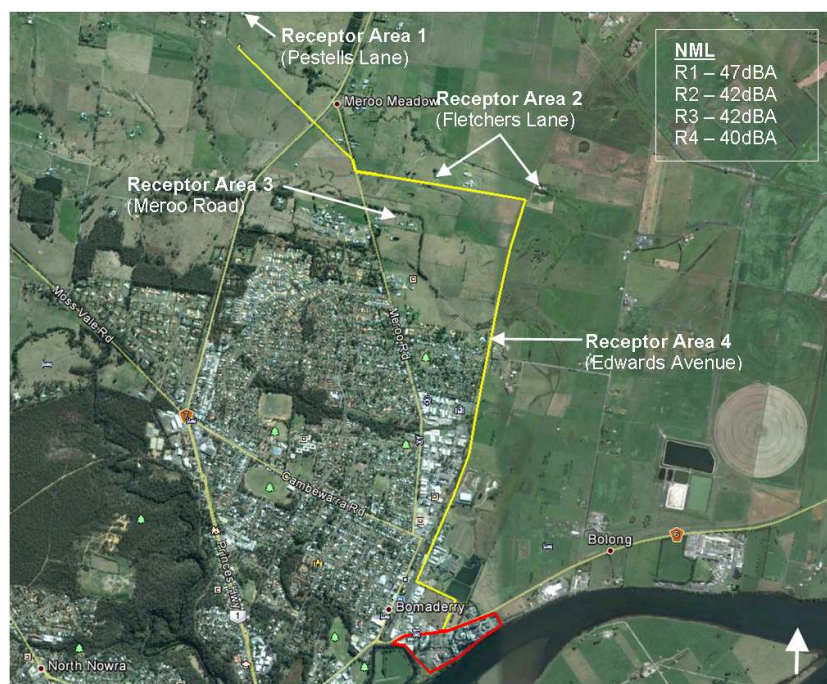


Figure 6: Noise receptor area locations

After further discussions with the Department and the EPA, Starches:

- agreed to restrict construction works to 7am to 5pm (Monday to Friday) and 8am to 1pm (Saturdays) with no work on Sundays or Public Holidays consistent with the ICNG;
- agreed to implement reasonable and feasible noise management and mitigation measures (including periods of respite for noisy construction works, the installation of acoustic screening/enclosures around rock hammering and drilling equipment and silencers on plant equipment); and
- engaged Day Design to prepare a comprehensive Construction Noise and Vibration Management Plan (CNVMP) for the project to minimise the noise impact of the project on residential receptors.

In light of this, the Department requested that Starches re-quantify the noise assessment in the EA with the implementation of additional noise control measures. The revised assessment found that noise could be reduced by around 6-8dBA at the nearest receivers, meaning that under worst-case scenarios (ie rock breaking) noise levels would now be around 74dBA at Receptor Area 4.

Although Starches would not comply with the relevant EPA construction noise criteria (RBL +10dBA), the Department recognises that:

- due to the close proximity of construction works to residents and short duration (10 weeks to complete), there would be limited scope to further reduce construction noise levels by using engineered noise controls;
- each receptor area is only expected to be exposed to construction noise from the project for a maximum period of up to 1 week;
- the noise assessment undertaken in the EA is highly conservative as it models a 'worst-case scenario' of predicted noise levels at receivers with all plant and equipment operating collectively, which is unlikely to occur in practice given that construction would be undertaken concurrently at different locations along the 5.5km pipeline route.

As a result, the Department requested that Starches place greater emphasis on managing potential noise impacts on individual receivers through a community consultation process. The EPA also requested that Starches give further consideration to all reasonable and feasible measures to minimise noise. These management measures have been detailed by Starches in the CNVMP for the project. In particular, the CNVMP now includes provisions to:

- appoint a community liaison officer to consult/inform potentially affected residents prior to noise intensive works and follow specified noise complaints handling procedures;
- take periods of respite for noise intensive works (e.g. only operating machinery for 2 to 3 hours in close proximity to residents); and
- train construction workers in work practices to minimise noise (e.g. comply with construction hours, turn off plant when not in use and use designated vehicle routes/parking areas away from residents).

With these measures in place, the Department is satisfied that the construction noise impacts from the project can be effectively managed. Notwithstanding, the Department has recommended conditions of approval (CoA) that would require Starches to:

- monitor and comply with the predicted noise levels set as criteria in the approval;
- implement best practice noise management during construction, including all reasonable and feasible noise mitigation measures to minimise construction noise generated by the project;
- regularly assess the noise monitoring data and relocate, modify, mitigate and/or stop operation on-site to ensure compliance with the criteria set in the approval; and
- carry out the project in accordance with the CNVMP prepared by Day Design.

Both the EPA and Council have reviewed and are satisfied with the recommended draft CoA in relation to noise.

The Department considers the effective implementation of the CNVMP and associated noise management measures by Starches would be critical to ensuring the construction noise impacts of the project are minimised, to an acceptable level.

One public submission raised concern that noise from construction works could startle show horses located on her nearby property causing injury. Starches has consulted directly with this resident and committed to relocating the horses from the property to a suitable alternate location while construction works occur along the frontage of this property. The Department is satisfied with this arrangement and has incorporated this requirement into the recommended CoA. Under the recommended CoA, Starches would be required to provide evidence to the Department that this landowner has agreed with the proposed alternate property and the duration of the temporary relocation.

### Traffic Noise

Traffic noise impacts from the project were considered as part of Starches construction noise assessment. In addition to the work practices to minimise traffic noise outlined in the CNVMP, Day Design recommended a minimum distance of 35m be retained from any temporary staff parking area to any residence to ensure the relevant ICNG traffic noise criteria are met at all receptor areas for vehicles associated with the project. The Department has recommended a condition of approval to this effect. Temporary parking arrangements at key locations along the pipeline route would be formalised in the Traffic Management Plan for the project to achieve this minimum separation distance (see Table 3).

Operational noise is not considered to be an issue for this project because once the construction works have been completed, there would be no noise from the operation of pipeline (essentially gas running through pipes) or supporting infrastructure including the pressure reduction facility which is expected to be inaudible at all residential receptors.

### Vibration

As part of the construction of the pipeline, Starches would be required to undertake vibration intensive activities such as rock hammering and drilling which could cause human discomfort and/or cause structural damage to nearby houses. Day Design's assessment showed that the level of vibration that would be experienced by residents is unlikely to exceed the applicable criteria for human response or structural damage at any of these receivers because the vibration intensive plant to be used for construction works would be operated at a sufficient enough distance away from all residences (ie. >30m).

Council requested that that conditions be imposed to ensure there is an action plan should the vibration levels be exceeded to prevent damage to property and infrastructure.

To ensure that this issue is managed throughout the construction program, the Department has recommended CoA that would require Starches to:

- carry out the project in accordance with the CNVMP;
- comply with the applicable vibration criteria for human response and structural damage;
- measure the actual vibration emissions of the equipment used prior to construction, and establish site specific working distances for the use of this equipment; and
- regularly assess vibration monitoring data and relocate, modify, mitigate and/or stop operation on-site to ensure compliance with the relevant criteria.

In the event that construction works are required within 30m of residences, Starches has also committed to undertaking structural surveys (coupled with vibration monitoring) on properties located within 30m of rock hammering and other vibration intensive activities.

### Conclusion

The Department acknowledges that the project would not comply with the relevant EPA construction noise criteria at some residential locations during noise intensive works such as rock hammering and trenching. However, the Department has recommended CoA that would require Starches to implement all reasonable and feasible measures to minimise noise. Starches has accepted the imposition of these conditions, committed to implementing a CNVMP and managing potential noise impacts on individual receivers through a community consultation process.

With these conditions in place, the Department is satisfied that the noise and vibration impacts associated with the construction of the project can be effectively managed so that they are acceptable, particularly given that the works would be short-term (total 10 weeks), are expected to impact each receptor area for a maximum period of up to 1 week and would take place during daytime hours only.

The Department is also satisfied that construction vibration impacts can be effectively managed by maintaining adequate separation distances from residences.

## **5.3 Water Resources**

### Issue

The proposed gas pipeline would be required to cross under four minor watercourses, thereby potentially resulting impacts on the local water environment through erosion and sedimentation of watercourse crossings and riparian zones if not properly managed. The project also has the potential to have



groundwater impacts during construction and result in potential changes to hydrology once constructed (e.g. flooding and sea level rise).

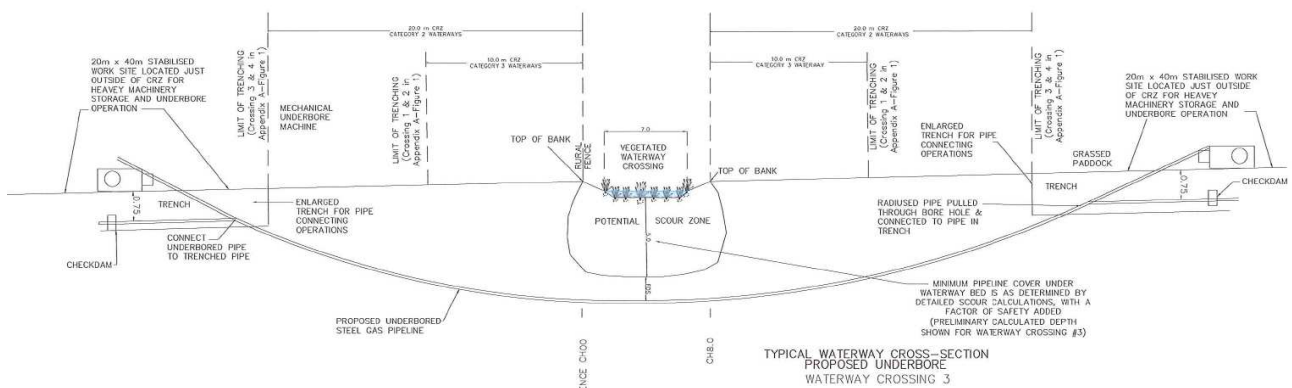
*Consideration*

Watercourse Crossings and Riparian Zones

As outlined above, four minor watercourses are located along the pipeline route (see Figure 7). All watercourses would be crossed by mechanical underbore, to mitigate impacts on watercourses and surrounding riparian zones (see Figure 8). NOW has indicated that this method is preferred rather than open trenching. Open trenching shall be stopped at the boundary of the core riparian zone (CRZ) at watercourses and trench stops put in place until a suitable watercourse crossing has been made.



**Figure 7: Watercourses located along the pipeline route**



**Figure 8: Cross-section of typical mechanical underbore proposed for watercourses**

To enable pipeline installation, temporary vehicle crossings would be required over creeks for stabilised machinery access. Temporary workspace approximately 20m by 40m would be required near the right of way at each side of the creek crossings to enable underbore machinery to be positioned to lay the pipe under the bed of each watercourse (see Figure 8). Vehicle crossings would remain in place until testing and commissioning of the pipeline is completed and the need for vehicular access ceases.

To minimise impacts from construction vehicles and machinery on watercourse crossings and riparian zones, Starches has committed to:

- preparing an Erosion and Sediment Control Plan for the project;
- installation of silt fences to minimise erosion from stockpiled soil;
- use of batter slopes for excavation support;
- replacing trenched soil and revegetation as soon as practicable;
- at NOW's request, installation of gabion mattresses (or similar) on watercourse beds for vehicle crossings to minimise disturbance and water flow; and
- on-going monitoring, maintenance and rehabilitation of land disturbed by the project (particularly bank stabilisation and bank and stream rehabilitation in riparian zones) following construction.

These measures would be further detailed in the Soil and Water Management Plan for the project required as part of the recommended conditions (see Table 3).

In the EA, Starches preliminary modelling indicated that the pipeline would need to be buried (underbored) at a depth of 0.9, 2.3, 5.1 and 3.4m below watercourses 1, 2, 4 and 4 respectively to prevent scouring of creek beds.

In its submission, NOW requested that Starches be required to prepare and submit detailed watercourse crossing construction method statements for underboring for the Department's approval, prior to any construction works near riparian zones. NOW requested that these statements include project specific modelling of exact scour depth safety margins and CRZ setbacks to ensure impacts on watercourses are minimised.

In the RTS, Starches submitted a revised design for watercourse crossings to demonstrate adequate protection of CRZs (see Figure 8) and committed to satisfying NOW's request regarding the submission of detailed watercourse construction methods statements. The Department has therefore recommended a CoA to this effect to ensure watercourses are crossed in accordance with the relevant requirements of NOW.

With the recommended CoA in place, the Department is satisfied that potential impacts of the project on watercourses and riparian zones can be effectively managed during construction. Further, following the cessation of construction works, the Department is satisfied that watercourses and riparian zones (including vegetation) would be rehabilitated (see 'flora and fauna' in Table 3). The NOW has also reviewed the draft CoA and has not raised any further concerns.

#### Groundwater Impacts

Groundwater inflows are not expected to pose a major constraint to construction of the project (including concrete pad construction for the meter station and gas pressure reduction facility). Excavations would vary from about 1m to 2.4m below the ground surface (up to ~5.1m for underboring). Groundwater would generally be encountered at a depth of 1.5m below the ground. Where groundwater inflows are encountered they would be controlled by dewatering via sumps. Following dewatering, groundwater would be tested and, if contaminated, disposed of off-site at a licensed facility and/or sewage treatment plant in accordance with the SWMP for the project.

The Department is therefore satisfied that potential groundwater impacts would be effectively managed.

#### Flooding and Sea Level Rise

A small part of the pipeline (~150m) in Fletchers Lane would be located on flood prone land. The impact of the project on flooding behaviour was an issue raised in public submissions. However, due to the minor and intermittent nature of construction works and the fact that the pipeline would be buried underground for its entire length, Starches assessment found that the project (including supporting infrastructure) is unlikely to contribute to significant changes in stormwater flow or water infiltration and would therefore not contribute to increased flood risk. Further, the pipeline would be designed (e.g. buried at a sufficient depth and coated with corrosion resistant materials) so that the integrity of the pipeline is not compromised by flood events that occur throughout its design life (i.e. 30 years).

As a portion of the southern part of the pipeline (about 1.4km) is located in the coastal zone, an assessment of sea level rise on the proposed gas pipeline was made by Starches. This assessment found that the predicted increase in flood levels along the proposed pipeline route due to sea level rise over its design life would be insignificant (i.e. a maximum flood level increase of 0.36% during a 1% Annual Exceedance Probability (AEP) flood event).

Council did not raise any issues in relation to flooding or sea level rise.

The Department is satisfied that the potential impacts of the project on local hydrology would be negligible.

## Conclusion

The Department is satisfied that with the implementation of recommended conditions, including project specific soil and water management measures controls detailed in the SWMP and watercourse crossing construction method statements prepared to the satisfaction of NOW, the project is unlikely to have any adverse impacts on local water systems.

Once construction of the pipeline has finished, no groundwater impacts are expected as a result of the operation of the project.

## 5.4 Other Issues

The Department's consideration of other issues is provided in Table 3 below.

Table 3: Assessment of other issues

Issue	Consideration	Recommended Conditions
Soil Contamination	<ul style="list-style-type: none"> <li>• Construction of the pipeline and supporting infrastructure (i.e. the meter station and gas pressure reduction facility) would involve shallow excavations (~1m to 2.4m deep) which would be managed via the implementation of standard erosion and sediment controls.</li> <li>• Coffeys Environmentalists (Coffeys) undertook historical reviews and subsequent field investigations (soil sampling) along the pipeline route which indicated a low to moderate likelihood that contaminated soil (including Acid Sulphate Soils – ASS) would be encountered during construction (ie. pipeline and concrete pad excavation works and pipeline trenching).</li> <li>• Evidence of contamination in soil samples was generally not recorded above the relevant soil investigation levels for commercial/industrial landuse, except for one sample of fill where asbestos was detected on Fletchers Lane.</li> <li>• The recording of asbestos was considered isolated and likely to be associated with discarded break pads or other wastes in fill soils used for road making.</li> <li>• To ensure this material is properly managed during construction, Coffeys recommended a number of measures in relation to the proper handling and disposal of contaminated soil (including asbestos and ASS) in accordance with the relevant guidelines.</li> <li>• Sand and/or gravel would be used to replace any contaminated soil requiring disposal off-site at a licensed facility.</li> <li>• The Department has formalised these recommendations into CoA (see recommendation).</li> <li>• The EPA and Council did not raise any issues in relation to contamination.</li> <li>• With recommended CoA in place, the Department is satisfied that the potential risks associated with the disturbance of contaminated soil during construction can be effectively managed.</li> </ul>	<p>Require Starches to:</p> <ul style="list-style-type: none"> <li>• prepare and implement a SWMP in consultation with the Council and NOW, as part of the CEMP including measures to: <ul style="list-style-type: none"> <li>- prevent erosion and sedimentation (in particular in riparian zones);</li> <li>- test, handle and stockpile excavated soil;</li> <li>- manage and dispose of contaminated soil;</li> <li>- rehabilitate disturbed land (in particular riparian zones);</li> </ul> </li> <li>• prepare and implement a ASS Management Plan in consultation with the Council and NOW, as part of the CEMP; and</li> <li>• handle and dispose of asbestos in accordance with the relevant guidelines.</li> </ul>
Traffic	<ul style="list-style-type: none"> <li>• The proposed pipeline would be installed along existing Council road reserves and/or RailCorp's rail reserve for the majority of its length and would require a moving construction Right Of Way (ROW, see Table 1) to accommodate workers, their vehicles and trucks delivering materials.</li> <li>• The project is expected to generate up to 25 light vehicles (LVs) from staff and 13 heavy vehicles (HVs) delivering materials a day. Considering a <u>worst-case assessment</u> where all construction staff arrive/depart at the same time, it is anticipated that 25 LVs and up to 5 HVs, or 30 vehicles in total, would need access to and park in the construction ROW at any one time.</li> <li>• Despite this: <ul style="list-style-type: none"> <li>- underboring would be undertaken at road/rail crossings along the pipeline route (e.g. at the Princes Highway) to minimise traffic disruption and eliminate the need to block roads during construction;</li> <li>- most staff trips are expected to occur outside the local morning and afternoon peak hour periods which are between 8am and 9am (morning) and 5pm and 6pm (afternoon);</li> <li>- construction works would be short-term for approximately 10 weeks; and</li> <li>- the majority of pipeline would be laid adjacent to rural roads (some unsealed) with very low traffic volumes (see Figure 3).</li> </ul> </li> <li>• The traffic assessment concluded that traffic generated by the project would be low, would not impact existing road service levels or capacities and can be undertaken in a safe and efficient manner, subject to the implementation of appropriate traffic management controls.</li> <li>• Notwithstanding, careful management of construction traffic would be required to ensure the existing operation of local roads and safety of users/construction workers is not impacted by the project.</li> <li>• Starches has committed to preparing a Construction Traffic Management Plan</li> </ul>	<p>Require Starches to:</p> <ul style="list-style-type: none"> <li>• ensure all trucks have covered loads and do not track dirt onto the public road network during construction;</li> <li>• ensure vehicles do not queue or park on private land and where possible, park on land owned by the Proponent;</li> <li>• maintain a minimum separation distance of 35 metres from any staff car parking area associated with the project to any residence; and</li> <li>• prepare and implement a Traffic Management Plan in consultation with RMS, RailCorp and Council, as part of the CEMP, detailing all measures to be taken to manage construction traffic, ensure road/rail safety and repair road/rail</li> </ul>

<b>Issue</b>	<b>Consideration</b>	<b>Recommended Conditions</b>
	<p>(CTMP) for the project in consultation with RMS and Council. This plan would detail access and parking at key points along the pipeline route, safety and traffic management protocols, measures to consult with potentially affected landowners and repair any damage caused to local roads.</p> <ul style="list-style-type: none"> <li>• The Department has incorporated the requirement for a TMP into the recommended CoA (see recommendation).</li> <li>• Council and RMS did not raise any issues in relation to traffic impacts.</li> <li>• The Department is satisfied that, subject to the implementation of recommended conditions, the project would not adversely impact on local traffic.</li> </ul>	<p>infrastructure (if necessary).</p>
<i>Infrastructure Services</i>	<ul style="list-style-type: none"> <li>• The pipeline would be located predominantly along existing road and rail reserves and therefore has the potential to impact on third party infrastructure services.</li> <li>• RMS and RailCorp recommended a number of CoA to ensure the installation of the pipeline does not affect road or rail infrastructure and meets the relevant pre-construction and construction safety and design requirements.</li> <li>• Council raised concern about the potential impact of the project on local infrastructure (including Shoalhaven Water infrastructure) and recommended a number of pre-construction and construction design requirements for the pipeline.</li> <li>• Council also requested detailed design drawings of the location of the pipeline within road reserves to identify impacts on Council infrastructure and assets. In particular, Council requested conditions be imposed that would require Starches to submit detailed pipeline location plans for the section from the EGP to the Princes Highway, prior to construction.</li> <li>• Starches has committed to meeting the requirements of RMS, RailCorp and Council in its SOC's and the Department has formalised these requirements into recommended CoA (see recommendation).</li> <li>• The Department is therefore satisfied that the impacts on third party infrastructure as a result of the project can be effectively managed.</li> </ul>	<p>Require Starches to:</p> <ul style="list-style-type: none"> <li>• prepare and implement an Infrastructure Management Plan in consultation with RMS, RailCorp and Council, as part of the CEMP including measures to: <ul style="list-style-type: none"> <li>- submit detailed engineering plans for the project that meet the pre-construction and construction safety and design requirements of RailCorp, RMS and Council; and</li> <li>- ensure road and rail reserves are restored back to original condition and at no cost to RailCorp, RMS, or Council.</li> </ul> </li> </ul>
<i>Air Quality</i>	<ul style="list-style-type: none"> <li>• The distance between pipeline construction works and the nearest residents would vary along the route, but would be within approximately 40m to 50m in some instances along Edwards Avenue.</li> <li>• Therefore, the project has the potential to create nuisance for these residents by generating dust and odour (from potentially contaminated soils) during construction.</li> <li>• The pipeline would be mostly buried and would not generate air emissions under normal operating conditions. However, a gas pressure reduction facility would be located at the end of the pipeline opposite the Starches factory on Bolong Road.</li> <li>• The air quality assessment concluded that there would be negligible air quality impacts associated with the construction and operation of the project (including the gas pressure reduction facility).</li> <li>• Notwithstanding this, Starches has committed to implementing best practice dust control measures to mitigate dust impacts on nearby sensitive receptors during construction including limiting soil exposure via staged installation, use of water sprays and restricting vehicle speeds on unsealed roads (e.g. in Fletchers Lane) and revegetation of exposed soils as soon as practicable.</li> <li>• The Department has formalised these commitments along with some additional provisions to manage air emissions in the recommended CoA.</li> <li>• One public submission requested that Fletchers Lane be sealed to minimise dust from vehicles during construction of the project.</li> <li>• However, the Department is satisfied dust impacts would be minimal, can be managed during construction in accordance with the recommended CoA for air and would be short-term for a maximum of 2 weeks at this location.</li> <li>• The EPA did not raise any issues in relation to air quality, therefore, both the Department and EPA agree that the project would have negligible air quality impacts.</li> </ul>	<p>Require Starches to:</p> <ul style="list-style-type: none"> <li>• not cause the emission of offensive odours from the site, as defined under Section 129 of the POEO Act;</li> <li>• implement best practice air quality management during construction;</li> <li>• minimise any visible air pollution generated by the project; and</li> <li>• implement all reasonable and feasible measures during construction and operation to minimise site odour (particularly from contaminated soil), fume and dust emissions to validate the predictions of the EA.</li> </ul>
<i>Greenhouse Gas (GHG) Emissions</i>	<ul style="list-style-type: none"> <li>• The pipeline would be mostly buried with no air release points under normal operating conditions. In addition, the gas pressure reduction facility would only release a small amount of gas during periodic maintenance. Therefore, while not quantified in the EA, the project is expected to have a negligible impact on GHG emissions.</li> <li>• Conversely, the increased availability (and reduced cost) of natural gas supplied to the site resulting from the project is expected to reduce reliance on coal for energy and reduce overall greenhouse gas emissions at the factory site.</li> <li>• Notwithstanding, the Commonwealth's Clean Energy Legislative Package and</li> </ul>	<p>Require Starches to:</p> <ul style="list-style-type: none"> <li>• implement all reasonable and feasible measures to minimise energy use on-site and greenhouse gas emissions.</li> </ul>

Issue	Consideration	Recommended Conditions
	<p>carbon pricing mechanism commenced on 1 July 2012.</p> <ul style="list-style-type: none"> <li>The legislation aims to provide a coordinated nationwide response to greenhouse gas management, reduce Australia's carbon pollution and provide incentives for industry to move to using clean energy.</li> <li>The Department is therefore satisfied that the project, together with the Commonwealth's new legislation, are likely to help reduce GHG emissions from the facility.</li> </ul>	
<i>Flora and Fauna (including rehabilitation)</i>	<ul style="list-style-type: none"> <li>An ecological assessment included desktop and targeted field surveys to determine the significance of the ecological values that could be affected by the project.</li> <li>The assessment concluded that there is very little native (and next to no natural) vegetation or threatened species/communities located along the pipeline route.</li> <li>Vegetation is dominated by exotic grassland and some intermittent trees (mostly introduced) lining roads which would be cleared or underbored as a result of the project. Underboring would also be undertaken at creek crossings to avoid impact on any riparian vegetation and aquatic habitats (e.g. for native fish).</li> <li>Further, no Groundwater Dependent Ecosystems (GDEs) occur along the proposed pipeline route.</li> <li>The EPA and Council did not raise any issues in relation to flora and fauna.</li> <li>NSW Fisheries made no objection to the project and requested the SOCs be included in the recommended CoA.</li> <li>NOW requested riparian vegetation rehabilitation be undertaken to ensure adequate protection of affected watercourses.</li> <li>A public submission also requested that, if trees need to be removed along road reserves, they be reinstated with mature plantings of a similar nature.</li> <li>The Department has incorporated the above requests into the recommended CoA.</li> <li>The Department is satisfied that the project would have a negligible impact on native flora and fauna.</li> </ul>	<p>Require Starches to:</p> <ul style="list-style-type: none"> <li>minimise vegetation clearing as far as practicable;</li> <li>where possible, avoid the removal of and retain trees along the pipeline route;</li> <li>replace any trees or plants that are disturbed or removed as a result of the construction of the project by replanting with similar mature native species, in consultation with Council; and</li> <li>rehabilitate riparian vegetation to its original condition in consultation with NOW as soon as practicable, but no later than 3 months following the cessation of construction.</li> </ul>
<i>Heritage</i>	<ul style="list-style-type: none"> <li>The Aboriginal heritage assessment included surveys and uncovered no sites or objects of heritage potential.</li> <li>OEH did not raise any issues of concern in relation to Aboriginal cultural heritage and suggested the Department consider conditions requiring Starches to prepare an Aboriginal Heritage Management Plan for the construction of the project.</li> <li>The Department has generally incorporated requirements to manage unexpected Aboriginal heritage finds into the recommended CoA (see recommendation).</li> <li>One public submission requested that the pipeline be located underground to ensure the project does not impact on the cultural heritage amenity of their property located in Fletchers Lane. Starches has confirmed that the pipeline would be buried underground for its entire length and therefore, no section would be visible along Fletchers Lane.</li> <li>Based on the above, and that the pipeline would be located within previously disturbed areas such as road reserves, the Department does not foresee any heritage impacts arising from the project.</li> </ul>	<p>Require Starches to:</p> <ul style="list-style-type: none"> <li>prepare heritage induction and training processes for construction personnel working at the site; and</li> <li>prepare procedures for dealing with heritage items uncovered on-site (including human remains), including the cessation of works and notification of the relevant authorities.</li> </ul>
<i>Waste</i>	<ul style="list-style-type: none"> <li>Waste generation during construction is expected to be minimal with mixed putrescibles from construction workers, some construction and demolition waste (e.g. steel scraps) and potentially contaminated soil and water.</li> <li>Waste would be collected and retained on-site in appropriate containers (bins) at key staging points and removed offsite to a licensed landfill.</li> <li>The Department has incorporated the Starches commitments in relation to waste management into the recommended CoA along with standard waste conditions (see recommendation).</li> </ul>	<p>Require Starches to:</p> <ul style="list-style-type: none"> <li>carry out the project in accordance with the SOCs for waste management; and</li> <li>classify all waste in accordance with the relevant EPA guidelines and dispose of at a facility that may lawfully accept the waste.</li> </ul>
<i>Visual</i>	<ul style="list-style-type: none"> <li>One public submission raised concern that the pipeline would negatively impact on visual amenity of the rural landscape. In the submission it was requested that the pipeline be located underground and any trees requiring removal as a result of the project be replaced with similar mature species.</li> <li>In its RTS, Starches clarified that the pipeline would be buried underground for its entire length.</li> <li>In addition, the Department has recommended a CoA requiring Starches to replace any trees be removed as a result of the project with mature plantings of a similar nature (see recommendation).</li> <li>While it is likely the proposed meter station at the EGP connection point would need to be installed outside the existing fenced area, it would be small in</li> </ul>	<p>Require Starches to:</p> <ul style="list-style-type: none"> <li>mitigate the visual impacts of the project for the life of the development; and</li> <li>replace trees disturbed or removed as a result of the project with similar mature native species.</li> </ul>

Issue	Consideration	Recommended Conditions
	<p>comparison to the existing Jemena and AGL facilities (see Figure 3) and is therefore expected to result in negligible visual change at this location.</p> <ul style="list-style-type: none"> <li>The proposed gas pressure reduction facility (see Figure 2) would be approximately 3m by 9m and 2m (aboveground), however is located in an established industrial area and over 500m from the nearest residence, and therefore is not expected to adversely impact on visual amenity.</li> </ul>	

## 6 CONCLUSION

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The Department has assessed the merits of the project having regard to the objects of the EP&A Act and the principles of ecologically sustainable development.

This assessment has found that the project:

- is potentially hazardous but complies with all hazards and risk criteria adopted in NSW for new developments including the Department's land use safety risk criteria;
- would generate high noise levels during construction at some residential locations during noise intensive works but can be effectively managed so that they are acceptable, particularly given that the works would be short-term (total 10 weeks), are expected to impact each receptor area for a maximum period of up to 1 week and would take place during daytime hours only; and
- would have some other impacts on (but not limited to) soil and water, traffic, air quality, greenhouse gas emissions and flora and fauna that would be generally minor and acceptable.

The Department is satisfied that with the implementation of the recommended conditions of approval, the impacts of the project can be adequately mitigated and/or managed to ensure an acceptable level of environmental performance.

The Department's assessment has also found that the project would allow Starches to seek an improved cost of supply of natural gas, reduce operating costs and greenhouse gas emissions by providing a financial incentive to reduce reliance on coal as an energy source at the Bomaderry factory. The project would also contribute to the long-term financial viability of these operations therefore ensuring local job security.

Consequently, the Department considers that the benefits of the project outweigh the costs and it is therefore in the public interest and should be approved, subject to conditions.

Starches has reviewed the draft conditions and are generally satisfied.

## 6. RECOMMENDATION

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It is recommended that the Planning Assessment Commission:

- consider** the findings and recommendations of this report;
- approve** the Concept Plan, under section 75O(1) of the EP&A Act;
- approve** the Project Application, subject to conditions, under section 75J of the EP&A Act; and
- sign** the attached instruments of approval (refer Appendix B).

Chris Ritchie  
Manager, Industry

Signed 23/10/12

Heather Warton  
**A/Executive Director**  
**Major Projects Assessment**

Signed 23/10/12

Chris Wilson  
**A/Deputy Director-General**  
**Development Assessment & Systems Performance**

# APPENDIX A: CONDITIONS OF APPROVAL

## **APPENDIX B: CONSIDERATION OF ENVIRONMENTAL PLANNING INSTRUMENTS**

### ***State Environmental Planning Policy (Major Development) 2005***

The proposal is classified as a Major Project under the now repealed Part 3A of the *Environmental Planning & Assessment Act 1979* (EP&A Act), as it includes development for the purpose of a pipeline that requires a licence under the *Pipelines Act 1967* (Pipelines Act) and is subject to an application for a licence under the Pipelines Act.

Consequently, the project is classified as a transitional Major Project under the now repealed Part 3A of the EP&A Act. This report has been prepared in accordance with the requirements of Part 3A and associated regulations, and the Minister (or his delegate) may approve or disapprove of the carrying out of the Project.

On 8 September 2010, the then Minister also authorised the submission of a concept plan for the project under Section 75M of the EP&A Act.

### ***State Environmental Planning Policy (Infrastructure) 2007***

The ISEPP aims to facilitate the effective delivery of infrastructure across the State by improving regulatory certainty and efficiency, identifying matters to be considered in the assessment of development adjacent to particular types of infrastructure development, and providing for consultation with relevant public authorities about certain development during the assessment process.

The project constitutes traffic generating development as an extension to an existing premise and has frontage to a classified road. Subsequently, the project was referred to the RMS for comment. A summary of RMS submission is detailed in Section 4 of this report. The project is considered to be consistent with the aims and objectives of the Infrastructure SEPP given the consultation and consideration of the issues raised by RMS has been undertaken and detailed in Section 5 of this report.

### ***State Environmental Planning Policy No. 14 – Coastal Wetlands***

SEPP 14 aims to ensure that the coastal wetlands are preserved and protected in the environmental and economic interests of the State.

No SEPP 14 wetlands are located within the vicinity of the proposed pipeline route following a review of mapping that supports the SEPP. The closest SEPP 14 wetland is located approximately 2.7km to the north-east of the pipeline route. Therefore, no impacts on SEPP 14 wetlands would occur as a result of the project.

### ***State Environmental Planning Policy No. 33 – Hazardous and Offensive Development***

SEPP 33 aims to identify proposed developments with the potential for significant off-site impacts, in terms of risk and/or offence (odour, noise etc). A development is defined as potentially hazardous and/or potentially offensive if, without mitigating measures in place, the development would have a significant risk and/or offence impact, on off-site receptors.

The pipeline was identified as being potentially hazardous and a Preliminary Hazard Analysis (PHA) was prepared and submitted as an addendum to the EA. The main hazards arise from possible leaks of natural gas from the pipeline, potentially leading to fire and/or explosion.

The Department's Major Hazards Unit has reviewed the project and the EA and the PHA prepared by SS and is satisfied that, subject to the implementation of hazard and risk mitigation measures and recommended conditions of approval, the project will not significantly increase the off-site impacts, in terms of risk and is therefore consistent with SEPP 33. The Department's detailed assessment of hazards and risk is contained within Section 5.1 of this report.

### ***State Environmental Planning Policy No. 44 – Koala Habitat Protection***

SEPP 44 aims to encourage the proper conservation and management of areas of natural vegetation that provide habitat for Koalas. The Shoalhaven local government area is listed in Schedule 1 of the



SEPP, therefore SEPP 44 applies to the project. A consent authority is required to determine whether an area affected by a project is a core koala habitat.

SS' flora and fauna assessment found that no threatened species, populations or ecological communities identified by surveys or are known or likely to occur along the pipeline route and therefore, the project is unlikely to have an adverse impact on species, populations and ecological communities (including koalas) listed under the TSC or EPBC Act/s.

The Department is therefore satisfied that the project would not impact on any koalas or core koala habitat and is therefore consistent with SEPP 44.

#### ***State Environmental Planning Policy No. 55 – Remediation of Land***

SEPP 55 aims to ensure that potential contamination issues are considered in the determination of a development application.

The Department has reviewed all contamination issues associated with the project and outlined in the EA. A detailed assessment of these issues is provided in Section 5.3 'Soil and Water' of this report.

SS undertook historical contamination and field investigations (soil sampling) for the project which revealed that contaminated soils that are likely to be encountered during construction would need to be carefully managed to ensure that these contaminants are not released into the environment.

SS recommended a number of measures in relation to the handling and proper disposal of contaminated soil in accordance with all relevant guidelines, codes of practice and standards. The Department has formalised these recommendations into conditions of approval that would require SS to prepare a Soil and Water Management Plan (SWMP) for the project.

The Department is satisfied that, subject to the implementation of the recommended conditions of approval and additional commitments made by SS, the project would not result in adverse impacts on the environment as a result the potential presence of contaminated material on-site/s.

#### ***State Environmental Planning Policy No. 71 – Coastal Protection***

SEPP 71 applies to land and development within the coastal zone (Clause 4) as defined by the *Coastal Protection Act 1979*. The southern portion of the pipeline (about 1.4km) is located within the coastal zone. Therefore, SEPP 71 applies to the project. SEPP 71 provides aims of the Policy (Clause 2) and matters for consideration (Clause 8) when assessing development proposals.

SEPP 71 broadly aims to protect and manage the natural, cultural, recreational and economic attributes of the NSW coast. The SEPP requires that certain development applications to be undertaken in sensitive coastal locations be referred to the Director-General for comment and identifies master plan requirements for specific development in the coastal zone. The SEPP also requires that Council's consider the policy in the preparation of any draft LEP on land to which the SEPP applies.

The project is not located within a sensitive coastal location and is not the subject of a masterplan or draft LEP by Council. However, as the project is located in the coastal zone, the Department has considered all relevant matters for consideration prescribed by the SEPP in its assessment of the project (see Section 5 of this report). In particular, the Department is satisfied that the project would not adversely impact on: any natural, cultural, recreational or economic attributes of the NSW coast; public access to the coastal foreshore; or coastal processes and hazards. The project is therefore considered to be generally consistent with the provisions of SEPP 71.

#### ***State Environmental Planning Policy (Rural Lands) 2008***

The Rural Lands SEPP aims to facilitate the orderly and economic use and development of rural lands for rural and related purposes. The SEPP applies to land in the Shoalhaven local government area and therefore applies to the project.

The SEPP mainly concerns development associated with rural dwellings, rural subdivision (Part 3) or on state significant agricultural land (Part 4), therefore is largely irrelevant to the project. However, the SEPP does outline rural planning provincials (Part 2) to help in achieving its aims which are relevant to the project because a large portion of the pipeline would be located on rural zoned land. Key rural

planning principles include the promotion and protection of sustainable economic activities in rural areas and the recognition of the significance of rural land uses, including the social and economic benefits of development.

The pipeline for be buried for the entirety of its length, would largely be laid in existing road reserves and would not inhibit any existing or future rural land use development. Further, the project would reduce the operating costs of the SS factory, ensuring local job security and on-going social and economic benefits for the rural communities surrounding the site. The project is therefore considered to be generally consistent with the provisions of the Rural Lands SEPP.

### ***Illawarra Regional Environmental Plan No. 1***

The REP applies to the project as the site is located in the Shoalhaven local government area. Key provisions relevant to the project include those in Division 2 of Part 2 (Development applications – rural lands), Part 5 (Provisions relating to energy) and Part 13 (Provisions relating to coastal lands, wetlands and other water bodies). The Department is satisfied that the project is broadly consistent with these and other provisions of the REP.

### ***Shoalhaven Local Environmental Plan 1985***

The SLEP is applicable to the site and provides development controls for development in the Shoalhaven local government area.

The preferred pipeline route would traverse areas zoned No 1(a) (Rural “A” (Agricultural Production), No 1(b) (Rural “B” (Arterial and Main Road Protection), No 1(g) (Rural “G” (Flood Liable), No 4(a) (Industrial “A” (General), No 4(e) (Industrial “E” (Restricted Development Zone) and No 5(b) (Special Use “B” Railway Zone) under the *Shoalhaven Local Environmental Plan 1985* (Shoalhaven LEP).

The proposal is permissible with consent in the 1(a), 1(b), 4(a) and 4(e) zones. However, the parts of the proposal located in areas zoned 1(g) and 5(b) would be prohibited.

To overcome this permissibility issue, Shoalhaven Starches has sought concept plan approval. On 8 September 2010, the then Minister authorised the submission of a concept plan for the project under Section 75M of the EP&A Act. The Department has considered the merits of overriding the prohibition in its assessment of the project (see Section 5 of this report).

Despite the prohibitions, the Department is satisfied that the project can be conducted in a manner that is consistent with the relevant zoning objectives, environmental and special provisions of the LEP. The intent of these provisions has been considered in detail in the Department's assessment in Section 5 of this report.

## **APPENDIX C: RESPONSE TO SUBMISSIONS**

## APPENDIX D: SUBMISSIONS

# APPENDIX E: ENVIRONMENTAL ASSESSMENT