



# Shoalhaven Starches Expansion Modification 17

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State Significant Development Modification Assessment  
(MP 06\_0228 MOD 17)

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*Cover image: Shoalhaven Starches (Source: Manildra Group)*

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# Glossary

Abbreviation	Definition
<b>BCA</b>	Building Code of Australia
<b>CIV</b>	Capital Investment Value
<b>Commission</b>	Independent Planning Commission
<b>Council</b>	Shoalhaven City Council
<b>Department</b>	Department of Planning, Industry and Environment
<b>DISER</b>	Federal Department of Industry, Science, Energy and Resources
<b>EIS</b>	Environmental Impact Statement
<b>EPA</b>	Environment Protection Authority
<b>EP&amp;A Act</b>	<i>Environmental Planning and Assessment Act 1979</i>
<b>EP&amp;A Regulation</b>	Environmental Planning and Assessment Regulation 2000
<b>EPBC Act</b>	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
<b>EPI</b>	Environmental Planning Instrument
<b>EPL</b>	Environment Protection Licence
<b>ESD</b>	Ecologically Sustainable Development
<b>LEP</b>	Local Environmental Plan
<b>Minister</b>	Minister for Planning and Public Spaces
<b>Planning Secretary</b>	Secretary of the Department of Planning, Industry and Environment
<b>Project Approval</b>	Project Approval issued under Part 3A of the EP&A Act
<b>SEARs</b>	Planning Secretary's Environmental Assessment Requirements
<b>SEPP</b>	State Environmental Planning Policy
<b>SRD SEPP</b>	State Environmental Planning Policy (State and Regional Development) 2011
<b>SSD</b>	State Significant Development

# Executive Summary

Shoalhaven Starches Pty Ltd (the Applicant) operate a factory at Bomaderry on the south coast of NSW. The factory processes wheat to produce flour, gluten, glucose, starch and ethanol for food, beverage, paper, hand sanitiser and fuel products. The factory has operated since 1979 and has approximately 300 employees.

In 2009, the then Minister for Planning approved an expansion to fuel-grade ethanol production at the factory and required the Applicant to implement a range of odour controls, including a wastewater treatment plant. These controls have substantially reduced odour from the factory and its irrigation areas. Since 2009, the Applicant has installed additional infrastructure at the factory, through modifications to the project approval. These modifications have allowed the Applicant to optimise production of flour and beverage-grade ethanol, to offset a reduced demand for fuel-grade ethanol in NSW.

The original project approval (06\_0228) was modified 15 times under Part 3A of the *Environmental Planning & Assessment Act 1979* (EP&A Act). In September 2018, the project was transitioned to State significant development (SSD) and on 16 June 2019 modification 16 was approved by the Independent Planning Commission (the Commission) under Section 4.55(2) of the EP&A Act. Modification 18 is still under consideration by the Commission.

On 18 December 2019, the Applicant lodged a modification application (MOD 17) under Section 4.55(1A) of the EP&A Act for the relocation of the approved No.5 Starch Dryer baghouse, installation of a service lift and alternative woodchip fuel source for boilers No. 2 and 4.

The modification would facilitate changes to the site's plant, equipment and infrastructure to improve the production efficiency of the Shoalhaven Starches facility including administrative modifications to conditions and the use of woodchips as an alternative fuel source.

The modification must be determined by the Commission, as the Applicant has made reportable political donations. The Commission has determined all previous modifications of the approval.

The Department has assessed the modification in accordance with the EP&A Act. The Department did not exhibit the modification in accordance with clause 117(3B) of the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation). However, it was made publicly available on the Department's website on 13 January 2020 and was referred to Shoalhaven City Council (Council), the NSW Environment Protection Authority (EPA) and Fire and Rescue NSW for comment. No objections were raised by Council, EPA or Fire and Rescue NSW.

The Applicant met with the Department on 13 February 2020 to discuss further modifications to site buildings and infrastructure required to accommodate approved operations of the facility. The Applicant subsequently amended the modification on 19 June 2020 to include alterations to the Specialty Products Building (SPB) and Product Dryer Building (PDB) including an increase in the building footprint and installation of new product dryer, car parking relocation, and demolition of storage and maintenance building.

The Department's assessment identified two key issues, air quality and hazards and risk. The Department consulted with the EPA and identified emissions generated from the proposed alternative

fuel source and changes to plant and equipment would remain compliant with the relevant impact assessment criteria and the existing Environment Protection Licence (EPL). The Department's internal hazards specialists reviewed the Preliminary Hazard Analysis, concluding the cumulative risk from the modified factory would comply with the NSW land use safety risk criteria. Other aspects including, noise, flooding and visual amenity would be appropriately managed through existing and modified conditions.

The Department's assessment has concluded the modification should be approved, subject to the recommended modifying conditions.

# Contents

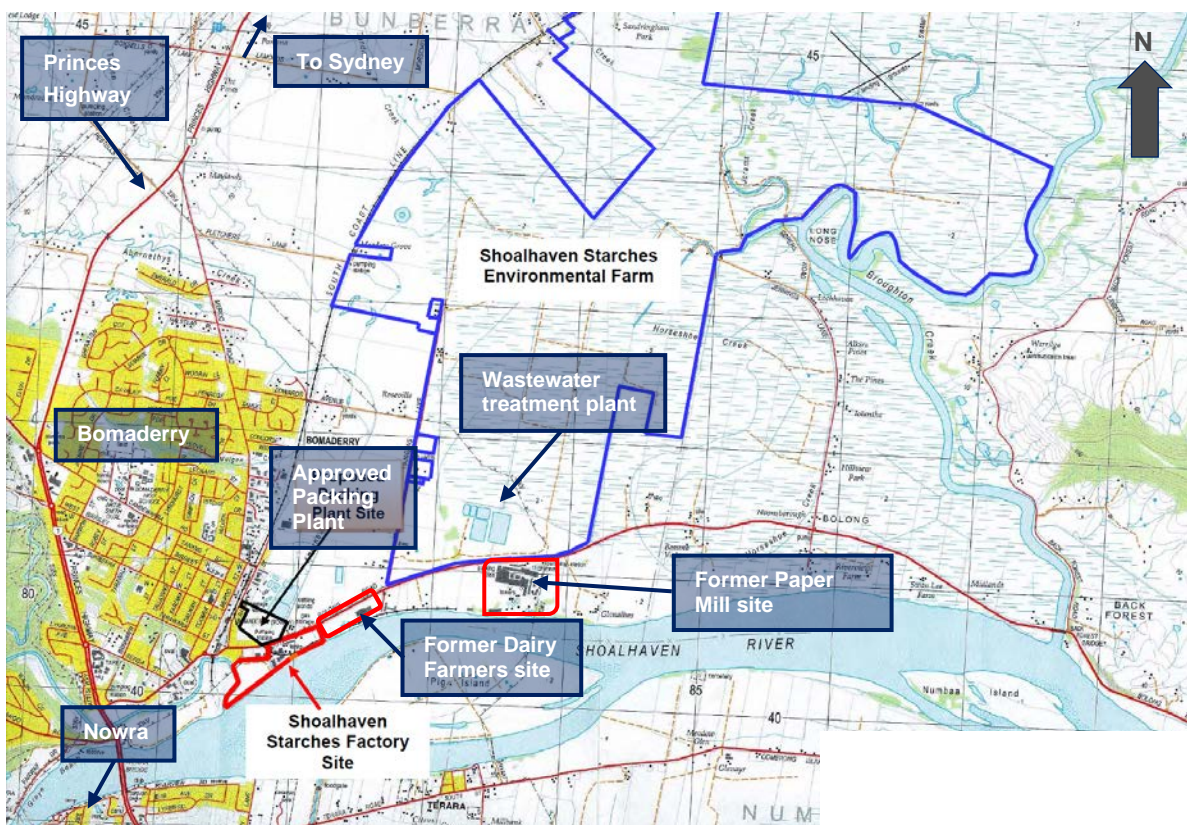
<b>1</b>	<b>Introduction .....</b>	<b>1</b>
1.2	Background .....	1
1.3	Approval History .....	2
<b>2</b>	<b>Proposed Modification .....</b>	<b>6</b>
2.1	Proposed Modification .....	6
<b>3</b>	<b>Strategic Context .....</b>	<b>12</b>
<b>4</b>	<b>Statutory context .....</b>	<b>13</b>
4.1	Scope of modifications .....	13
4.2	Consent authority .....	13
4.3	Part 3A transition to State significant development .....	13
4.4	Biodiversity Conservation Act 2017 .....	13
<b>5</b>	<b>Engagement .....</b>	<b>14</b>
5.1	Department's engagement .....	14
5.2	Summary of submissions .....	14
5.3	Key issues raised in submissions .....	14
5.4	Response to submissions .....	14
5.5	Amendments to modification .....	14
<b>6</b>	<b>Assessment .....</b>	<b>16</b>
6.2	Air Quality .....	16
6.3	Hazards and Risks .....	18
6.4	Other issues .....	19
<b>7</b>	<b>Evaluation .....</b>	<b>24</b>
<b>8</b>	<b>Recommendation .....</b>	<b>25</b>
<b>9</b>	<b>Determination .....</b>	<b>26</b>
	<b>Appendices .....</b>	<b>27</b>
	Appendix A – List of Documents .....	27
	Appendix B – Recommended Modification Instrument .....	28

# 1 Introduction

- 1.1.1 This report provides an assessment of an application to modify the State significant development (SSD) consent for the Shoalhaven Starches Expansion (MP 06\_0228) in Bomaderry.
- 1.1.2 The modification seeks approval for the relocation of the approved No.5 Starch Dryer baghouse, installation of a service lift, alterations to the Specialty Products Building (SPB) and Product Dryer Building (PDB) including increase of building footprint, elevation of existing underground service conduit to ground level and alternative woodchip fuel source for boilers No. 2 and 4. The modification was lodged by Shoalhaven Starches Pty Ltd (the Applicant) pursuant to section 4.55(1A) of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

## 1.2 Background

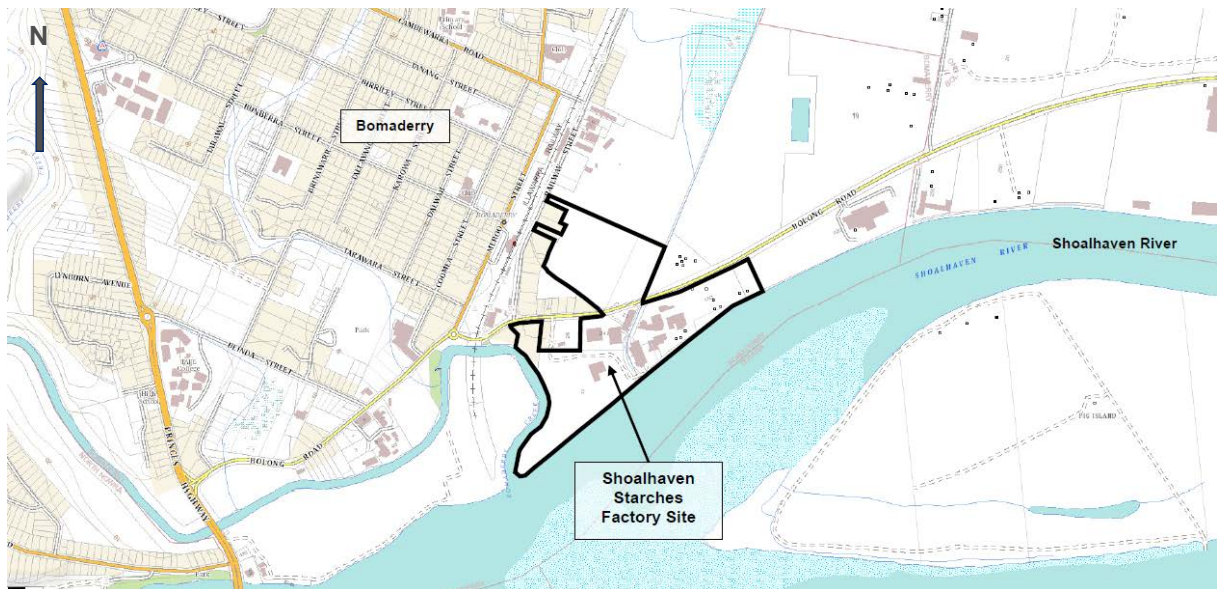
- 1.2.1 The Applicant has operated a factory at Bomaderry in the Shoalhaven local government area (LGA) since 1979 (see **Figure 1**). The factory receives wheat grain from mills in western NSW which is processed to produce flour, gluten, glucose, starch and ethanol for food, beverage, paper and fuel products. The factory is a 24/7 operation and has approximately 300 employees.



**Figure 1 | Regional Context Map**

- 1.2.2 The factory is located on the eastern fringe of Bomaderry and is two kilometres (km) to the north-east of Nowra (see **Figure 2**). The factory is surrounded by other industrial premises, including a metal fabrication factory, meat packaging works and industrial and agricultural suppliers. The nearest residences are in Bomaderry, 300 metres (m) to the west of the approved packing plant and 500 m north-west of the factory.

- 1.2.3 Shoalhaven City Council's sewage treatment works is located 180 m to the north of the factory and Bomaderry railway station is located 500 m north-west. Shoalhaven Starches has a private rail spur line, which extends from the railway station across Railway Street and Bolong Road into the factory site, extending for approximately 750 m along the northern bank of the Shoalhaven River.
- 1.2.4 The Shoalhaven Starches factory encompasses the former Dairy Farmers complex and the former Shoalhaven Paper Mill, located east of the main factory on Bolong Road.



**Figure 2 | Local Context Map**

### **1.3 Approval History**

- 1.3.1 Prior to 2009, the Applicant operated its factory under multiple, separate planning approvals issued by Shoalhaven City Council (Council) and the then Minister for Planning.

#### **Shoalhaven Starches Ethanol Expansion Project (06\_0228)**

- 1.3.2 In January 2009, the then Minister for Planning approved the Shoalhaven Starches Ethanol Expansion Project (SSEEP) under the now repealed Part 3A of the EP&A Act. The SSEPP approval consolidated all previous planning approvals for the site with the aim of simplifying regulation and compliance.
- 1.3.3 The SSEPP involved:
- staged increases of ethanol production from 126 megalitres a year (ML/yr) to 200 ML/yr following successful implementation of mandatory odour controls
  - implementation of mandatory odour controls including a wastewater treatment plant and biofilter
  - installation of additional infrastructure at the dried distillers grain (DDG) plant, ethanol and starch plants, a new packing plant, rail siding and product and wastewater pipelines.
- 1.3.4 By June 2012, the Applicant had installed the mandatory odour controls and the Department approved the increase in ethanol production (as prescribed in the conditions) to the maximum volume permitted being 300 ML/yr, subject to conditions, including quarterly odour monitoring and annual odour audits. However, demand for ethanol in fuels has not increased as predicted and ethanol production levels at the factory in 2017 were around 237 ML/yr.

- 1.3.5 Given the reduced market demand for ethanol, the Applicant has progressively installed infrastructure over the last few years, to allow optimisation of flour products and increased production of beverage grade ethanol for alcohol products. This has required several modifications to the SSEEP approval, including a new starch dryer, flour mill and a beverage grade ethanol distillery at the factory.

#### Modifications to 06\_0228

- 1.3.6 The Minister for Planning and Public Spaces has approved 16 modifications to the SSEEP since 2009. All modifications were approved by the former Planning Assessment Commission or Independent Planning Commission (the Commission) under the Minister's delegation. **Table 1** summarises the modifications.

**Table 1 | Summary of Modifications**

Mod No.	Summary of Modifications	Approval Authority	Type	Approval Date
<b>MOD 1</b>	<ul style="list-style-type: none"> <li>removed the requirement for dried distillers grain (DDG) pelletising plant from the list of mandatory odour controls</li> <li>implement alternate odour controls including a new loading chute with dust extractor and extension of the load-out shed to fully enclose truck loading.</li> </ul>	Minister	Part 3A	30 Sept 2011
<b>MOD 2</b>	<ul style="list-style-type: none"> <li>install additional infrastructure to improve operational and energy efficiency, including two additional fermenter tanks, an evaporator, beer column, heat exchangers, substation and compressors.</li> </ul>	Minister	Part 3A	14 Sept 2012
<b>MOD 3</b>	<ul style="list-style-type: none"> <li>relocate approved 60 space staff car park to the former Dairy Farmers site and include the site in the project approval, following acquisition by the Applicant.</li> </ul>	Minister	Part 3A	9 Oct 2012
<b>MOD 4</b>	<ul style="list-style-type: none"> <li>relocate the approved DDG pelletising plant within the factory site, increases its footprint and approved height, from 21 m to 28 m.</li> </ul>	Minister	Part 3A	24 Mar 2014
<b>MOD 5</b>	<ul style="list-style-type: none"> <li>modify the design, footprint and odour controls on the DDG pelletising plant including a 49 m air discharge stack and eight storage silos.</li> </ul>	Minister	Part 3A	16 Sept 2015
<b>MOD 6</b>	<ul style="list-style-type: none"> <li>demolish a disused industrial building "Moorehouse" purchased by the Applicant</li> <li>construct a temporary car park on the northern side of Bolong Road.</li> </ul>	Minister	Part 3A	25 Nov 2015

<b>MOD 7</b>	<ul style="list-style-type: none"> <li>relocate the approved Starch Dryer No. 5 to the former "Moorehouse" site, increase the footprint and construct a substation, pipework and pipe gantry.</li> </ul>	Minister	Part 3A	18 Jan 2016
<b>MOD 8</b>	<ul style="list-style-type: none"> <li>extend the existing flour mill to increase flour production from 265,000 to 400,000 tonnes per annum (tpa) and offset imports of flour to the factory from mills in western NSW.</li> </ul>	Minister	Part 3A	1 Mar 2016
<b>MOD 9</b>	<ul style="list-style-type: none"> <li>increase the size of the approved packing plant to increase the type and volume of packaged dried products</li> <li>construct a container storage and truck loading area with noise barriers</li> <li>extend and duplicate the approved rail spur line</li> <li>install product pipes under Bolong Road, a small bag packer at the DDG pellet plant and a new stormwater detention tank.</li> </ul>	Minister	Part 3A	8 Mar 2017
<b>MOD 10</b>	<ul style="list-style-type: none"> <li>construct a new flour mill B and increase flour production on site from 400,000 tpa to 842,400 tpa. Relocate storage silos and construct a mill feed structure.</li> </ul>	Minister	Part 3A	18 April 2017
<b>MOD 11</b>	<ul style="list-style-type: none"> <li>reduce the number of approved dryers and relocate approved footprint, relocate cooling towers, construct a forklift maintenance building, install two biofilters, construct hardstand for container storage, store coal and woodchips on the factory site and environmental farm.</li> </ul>	Minister	Part 3A	1 Sept 2017
<b>MOD 12</b>	<ul style="list-style-type: none"> <li>increase production of beverage grade ethanol and reduce production of fuel grade ethanol</li> <li>install ethanol distillery infrastructure including rectification columns, cooling towers, a substation, storage tanks and pipes</li> <li>extend two rail siding and provide additional car parking.</li> </ul>	Minister	Part 3A	1 Sept 2017
<b>MOD 13</b>	<ul style="list-style-type: none"> <li>increase steam production from three existing boilers by converting to coal fired boilers and installing baghouses.</li> </ul>	Minister	Part 3A	18 Jan 2018

<b>MOD 14</b>	<ul style="list-style-type: none"> <li>incorporate the former Shoalhaven Paper mill into the project approval and use the site for buffer storage for products, plant, construction materials and shipping containers.</li> </ul>	Minister	Part 3A	27 April 2018
<b>MOD 15</b>	<ul style="list-style-type: none"> <li>construct a carbon dioxide plant at the former Dairy Farmers complex to capture and treat waste gas to a food grade standard for sale to food and hospitality markets.</li> </ul>	Minister	Part 3A	7 Aug 2018
<b>MOD 16</b>	<ul style="list-style-type: none"> <li>construction of new flour mill and gluten dryer, specialty products building, boiler and coal-fired cogeneration plant</li> <li>conversion of two gluten dryers to starch dryers.</li> </ul>	Minister	4.55(2)	18 June 2019
<b>MOD 18</b>	<ul style="list-style-type: none"> <li>production of hand sanitiser grade ethanol and hand sanitiser including the relocation of gas fired boiler and repurposing of de-fatting plant.</li> </ul>	Minister	4.55(1A)	Under Recommendation

### Council Issued Consents

- 1.3.7 Separate to the SSEEP approval, the Applicant sought and obtained development consents from Council for works associated with the factory. This has included:
- construction and operation of an interim packing plant at the factory (DA 11/1002)
  - demolition of the dimethyl ether plant (DA 13/1713)
  - construction of two additional grain silos for buffer storage (DA 14/2161).
- 1.3.8 Council also granted consent to the Applicant for road and site access upgrades, consistent with the SSEEP approval. These included:
- upgrades to site access points on Bolong Road, including the Dairy Farmers site access (DA 10/1843)
  - widening the access point to the interim packing plant (DA 11/1855).
- 1.3.9 Two other Council issued consents apply to land adjacent to the factory and owned by the Applicant. These include the Algae Demonstration Facility and the Meat Processing Plant, both located on the former Dairy Farmers site.

## 2 Proposed Modification

### 2.1 Proposed Modification

- 2.1.1 The Applicant lodged the application under section 4.55(1A) of the EP&A Act to modify 06\_0228. The modification is described in full in the Statement of Environmental Effects (SEE) and the addendum SEE included in **Appendix A** and is summarised in **Table 2**. **Figure 3** shows the location of all aspects of the modification. **Figure 4**, **Figure 5**, **Figure 6** and **Figure 7** show further details of key components.

**Table 2 | Components of the Modification**

Modification Aspect	Description
<b>Original Modification</b>	
<b>Starch Dryer No. 5 baghouse</b>	<ul style="list-style-type: none"> <li>relocation of approved baghouse from western side of starch dryer building to the northern side of the building.</li> </ul>
<b>Starch Dryer No. 5 Service lift</b>	<ul style="list-style-type: none"> <li>installation of a service lift adjacent to the western wall of the Starch Dryer No. 5.</li> </ul>
<b>Service Conduit</b>	<ul style="list-style-type: none"> <li>elevation of underground service conduit to ground level.</li> </ul>
<b>Boiler Nos. 2 and 4</b>	<ul style="list-style-type: none"> <li>inclusion of woodchips as an alternative fuel source for coal fired boiler No's.2 and 4 with a total use of 7,000 tonnes per annum of woodchips.</li> <li>Boiler No.2 is proposed to operate on 25% woodchip and 75% coal</li> <li>Boiler No.4 is proposed to operate on 16% woodchip and 84% coal.</li> </ul>
<b>Conditions</b>	<ul style="list-style-type: none"> <li>Modifications to Condition 14J(e) requiring noise validation reporting to alter design specifications for noise silencers fitted to exhaust fans of Flour Mill B.</li> </ul>
<b>Additions to Modification Proposal</b>	
<b>PDB</b>	<ul style="list-style-type: none"> <li>increase in building footprint of PDB (62.7 m x 26.8 m)</li> <li>4 bulk specialty products tanks.</li> </ul>
<b>SPB</b>	<ul style="list-style-type: none"> <li>increase in the building footprint</li> <li>installation of approved Product Dryer No. 9 within the SPB.</li> </ul>
<b>Maintenance Office and Storage</b>	<ul style="list-style-type: none"> <li>demolition of part of the existing maintenance office and storage.</li> <li>repurposing the remaining part of the maintenance building to provide staff amenities and Plant Operation Control Rooms.</li> </ul>
<b>Extension of Sifter</b>	<ul style="list-style-type: none"> <li>Increase of sifter located on top of interim Packing Plant to a height of 15.7 m and a building footprint of 13.6 m x 6.5 m.</li> </ul>
<b>Car Parking</b>	<ul style="list-style-type: none"> <li>relocation of the existing car parking (48 spaces) to approved car parking area located to the north of Bolong Road.</li> </ul>

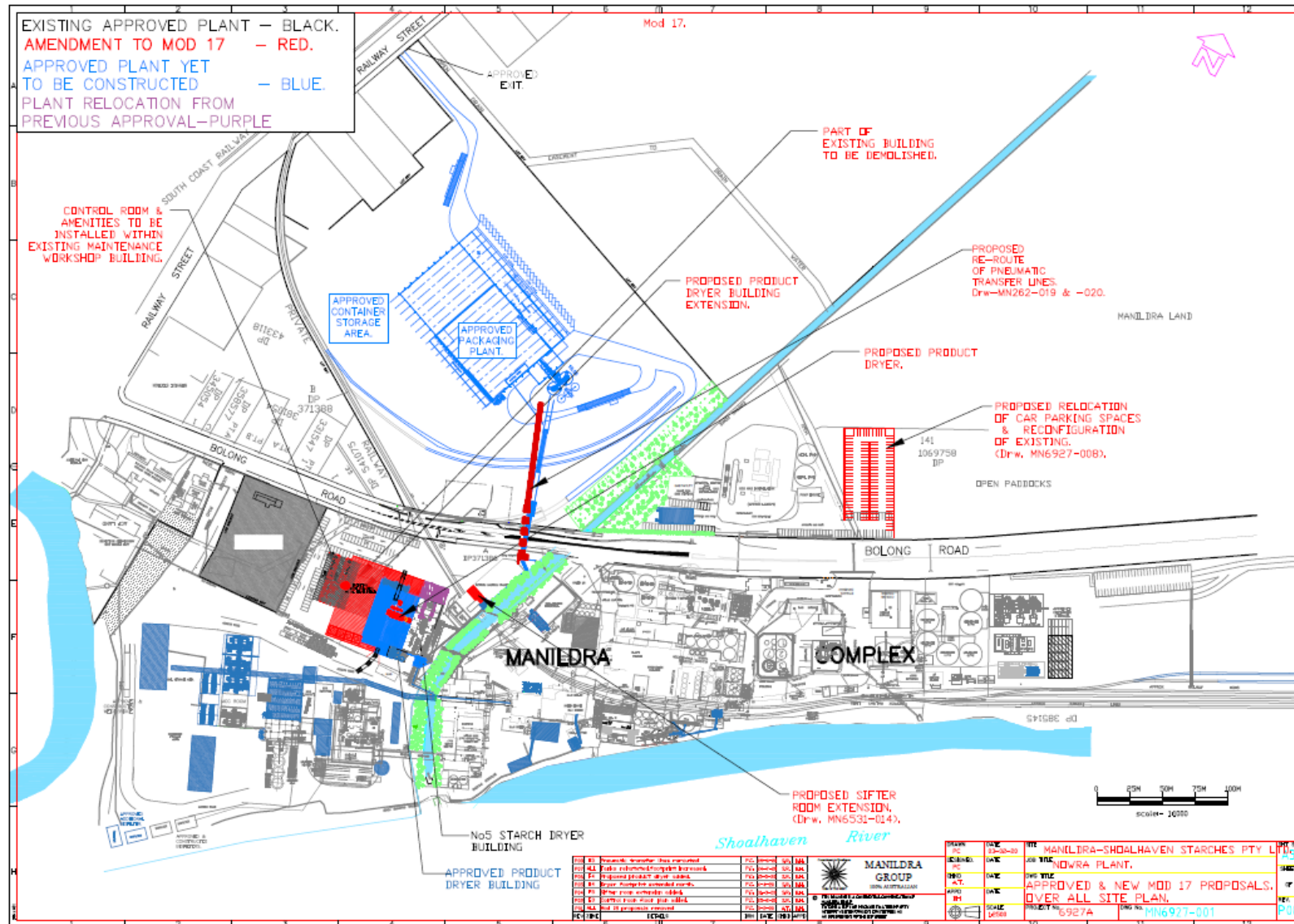


Figure 3 | Site Plan

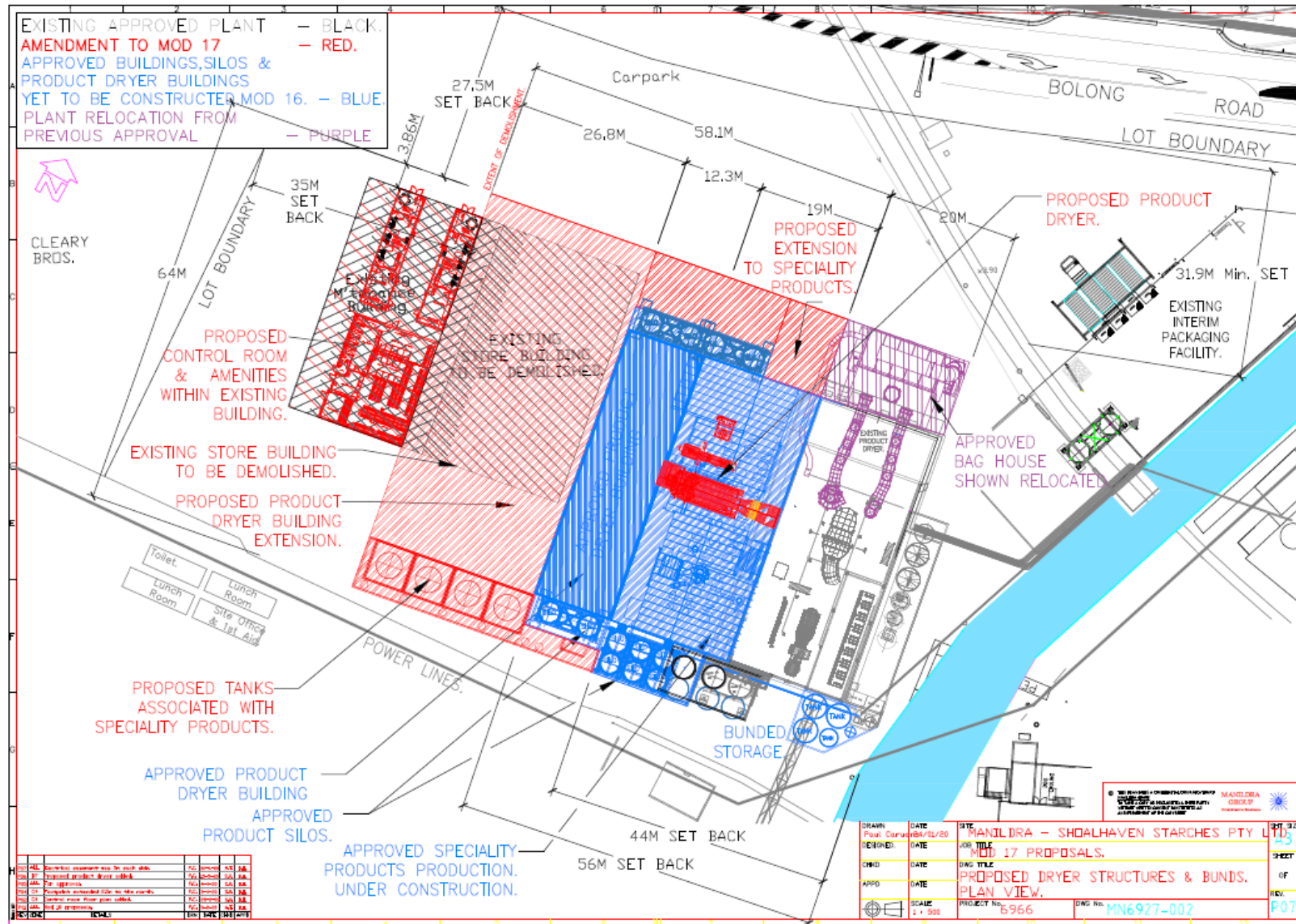


Figure 4 | Modifications to Product Dryer

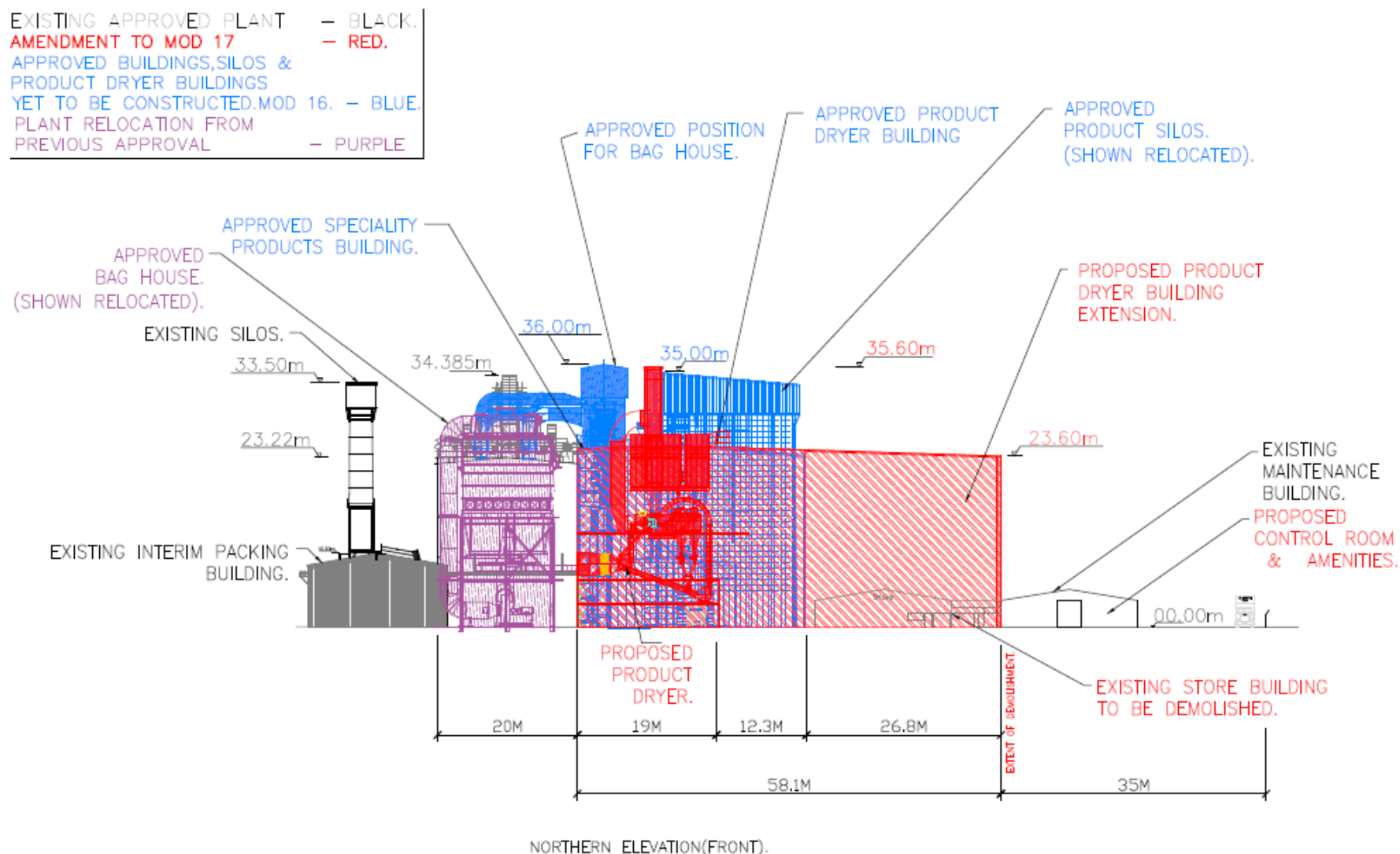
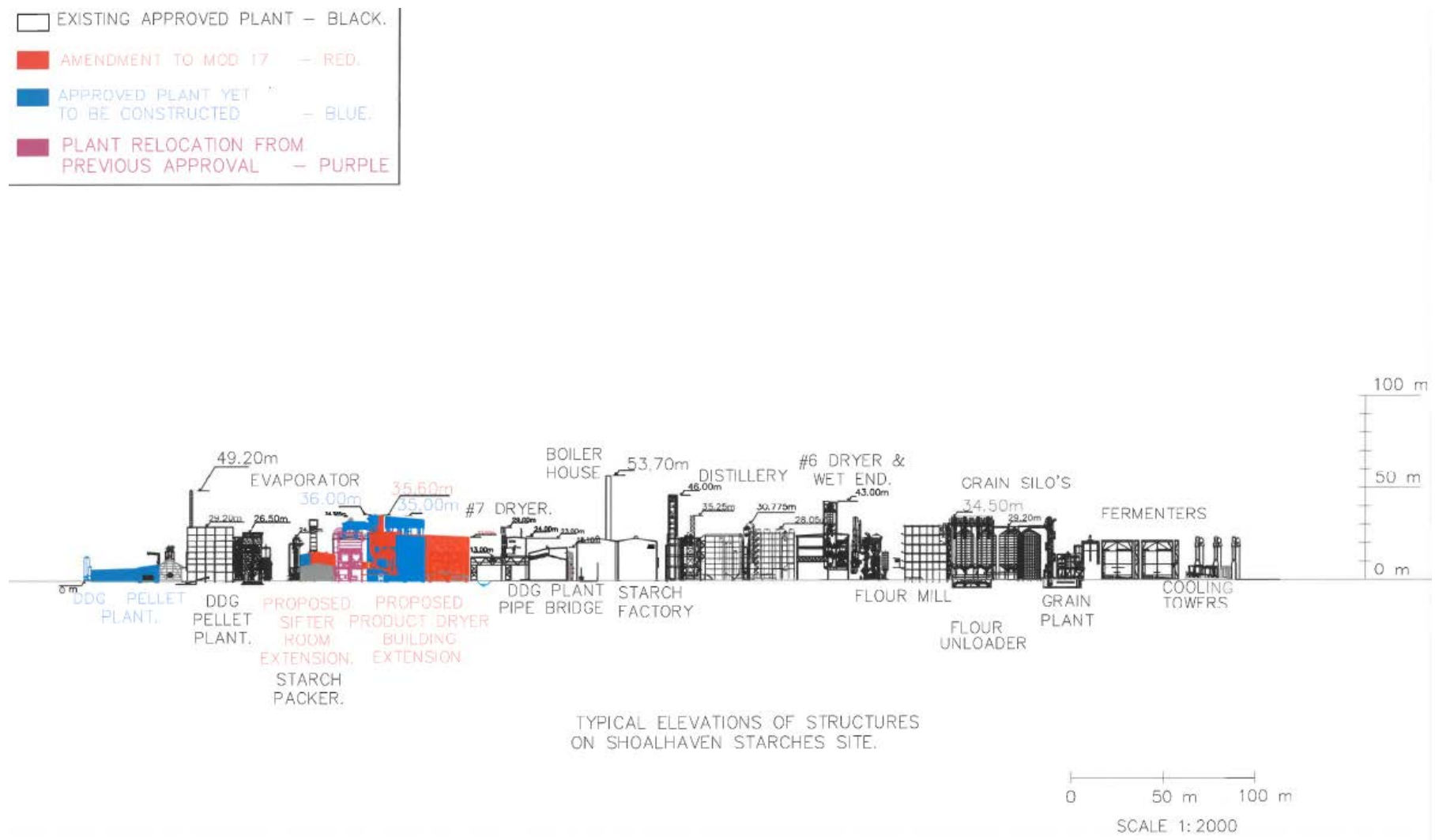


Figure 5 | MOD 17 Northern Elevation





**Figure 7 | Shoalhaven Starches Facility Elevation**

### 3 Strategic Context

- 3.1.1 The Department has considered the strategic context of the site and is satisfied the modification is consistent with relevant strategic planning documents including the *Illawarra Shoalhaven Regional Plan* (ISRP) 2015.
- 3.1.2 The ISRP sets a vision and goals for the region covering housing, jobs, environment and transport. The proposed modification would contribute to the goal of driving regional employment and business growth, by providing 5 operational jobs and up to 80 construction jobs. The modification would also contribute to the on-going employment of over 300 staff at the Shoalhaven Starches factory. The modification would enable Shoalhaven Starches to maintain an efficient and competitive manufacturing business that contributes to the local and regional economy.

## 4 Statutory context

### 4.1 Scope of modifications

4.1.1 The Department has reviewed the scope of the modification and considers it can be characterised as a modification involving minimal environmental impacts as it:

- would not significantly increase the environmental impacts of the development as approved
- the modification would not involve any works outside already approved development areas
- is substantially the same development as originally approved, and
- would not involve any further disturbance outside the already approved disturbance areas for the development.

4.1.2 Therefore, the Department is satisfied the modification is within the scope of section 4.55(1A) of the EP&A Act and does not constitute a new development application. Accordingly, the Department considers that the modification should be assessed and determined under section 4.55(1A) of the EP&A Act rather than requiring a new development application to be lodged.

### 4.2 Consent authority

4.2.1 The Minister for Planning and Public Spaces is the consent authority for the modification under section 4.5(a) of the Act. However, as the Applicant made reportable political donations, the modification will be determined by the Commission in accordance with the Minister's Instrument of Delegation, dated 9 March 2020.

### 4.3 Part 3A transition to State significant development

4.3.1 The SSEEP was originally approved under Part 3A of the EP&A Act. The project was a transitional Part 3A project under Schedule 2 to the EP&A (Savings, Transitional and Other Provisions) Regulation 2017. On 7 September 2018, an order made by the Minister's delegate was published in the Gazette declaring the project that was a Part 3A project to be State significant development under clause 6 to Schedule 2 of the EP&A (Savings, Transitional and Other Provisions) Regulation 2017. As a result, the project approval is taken to be a State significant development consent under Part 4 of the EP&A Act and may be modified under section 4.55 of the EP&A Act.

### 4.4 Biodiversity Conservation Act 2016

4.4.1 Clause 30A(2)(c) of the Biodiversity Conservation (Savings and Transitional) Regulation 2017 specifies that if the determining authority is satisfied a modification will not increase the impact on biodiversity values, a biodiversity development assessment report (BDAR) is not required.

4.4.2 As the proposed modifications are wholly located on existing hardstand areas within the site and do not involve the disturbance of any vegetation, the Department's assessment concludes a BDAR is not necessary for the proposed modification.

## 5 Engagement

### 5.1 Department's engagement

- 5.1.1 Clause 117(3B) of the EP&A Regulation specifies that the notification requirements of the EP&A Regulation do not apply to section 4.55(1A) modifications with minimal environmental impact applications. Accordingly, the modification was not notified or advertised. However, it was made publicly available on the Department's website on 13 January 2020 and was referred to Council, EPA and NSW Fire and Rescue for comment.

### 5.2 Summary of submissions

- 5.2.1 The Department received three submissions from Government agencies. There were no submissions from the public or special interest groups. There were no objections to the modification.
- 5.2.2 **Council** provided no objection to the modification subject to recommended conditions relating to flooding engineering.
- 5.2.3 **EPA** did not object to the modification but provided comments which are described in Section 5.3 below.
- 5.2.4 **Fire and Rescue NSW** did not object to the modification but required clarification on the proposed chemical storage tanks.

### 5.3 Key issues raised in submissions

- 5.3.1 The EPA noted there was inconsistencies in the Air Quality Impact Assessment (AQIA) prepared by GHD regarding monitoring data used to compare boilers No. 2 and 4. Furthermore, the EPA required emissions comparisons of the current fuel sources with the proposed woodchip and coal fuel mix.

### 5.4 Response to submissions

- 5.4.1 The Applicant provided a revised AQIA to address comments made by the EPA on 31 March 2020.
- 5.4.2 EPA reviewed the revised AQIA and advised its previous comments had been adequately addressed by the Applicant and provided recommended conditions of consent.

### 5.5 Amendments to modification

- 5.5.1 The Applicant met with the Department on 13 February 2020 to discuss further modifications to site buildings and infrastructure required to accommodate approved operations of the facility. The application was subsequently amended on 19 June 2020 to include extensions of the PDB and SPB buildings, additional bulk chemical storage, demolition works, relocation of car parking, extension of sifter room and installation of Product Dryer No.9 within the SPB. The modification application was subsequently re-notified to Council, EPA and NSW Fire and Rescue for comment.
- 5.5.2 EPA reviewed the amended modification and advised the previously recommended conditions remained applicable to the modification.

- 5.5.3 Fire and Rescue NSW required clarification regarding proposed chemical bulk storage and the propagation measures proposed.
- 5.5.4 Council advised the Department it had no objections to the amendments of the modification and provided recommended conditions.
- 5.5.5 The Department additionally requested additional information on hazard and risk analysis regarding the proposed chemical bulk storage analysis on 23 July 2020.
- 5.5.6 The Applicant provided a response to comments raised by Fire and Rescue NSW and the Department on 28 July 2020.

## 6 Assessment

6.1.1 The Department has assessed the merits of the modification. During this assessment, the Department has considered the:

- SEE and RtS (see **Appendix A**)
- assessment reports for the original project and subsequent modifications
- submissions from State government agencies and Council (**Appendix A**)
- relevant environmental planning instruments, policies and guidelines
- requirements of the EP&A Act, including the objects of the EP&A Act.

6.1.2 The Department considers the key issues for the modification are air quality and hazards and risks. **Table 3** provides the Department's assessment of other issues.

### 6.2 Air Quality

6.2.1 A key objective for the Shoalhaven Starches factory is to ensure air quality and odour impacts do not increase with subsequent modifications to the factory. The SSEE approval required the Applicant to implement significant odour controls, including the wastewater treatment plant, biofilters and cleaning of ductwork throughout the factory. These measures were implemented throughout 2011-12 and have been successful in substantially reducing odour impacts on nearby residential areas.

6.2.2 Historically, the Applicant used coal in the on-site boilers to produce energy and steam for production processes. Some boilers were converted to run on natural gas and were operated using gas for several years. The Applicant proposes to alter the fuel source of boilers No. 2 and 4 from coal to a blend of woodchip and coal, relocate the product dryer baghouse, install an additional stack to starch dryer 5 and new product dryer No. 9. The modifications are likely to alter the pollutant emissions and dispersion from the Shoalhaven Starches facility.

#### Original Modification – Air Quality Impact Assessment

6.2.3 The Applicant provided an AQIA prepared by GHD Pty Ltd in accompaniment with the SEE. The AQIA provided an assessment of the off-site odour and air quality impacts of the modification. The EPA reviewed the AQIA and requested the AQIA be revised to clarify emission estimates for boilers No. 2 and 4, and to provide comparison of emission estimates for both fuel sources. The Applicant provided a revised AQIA on 31 March 2020.

6.2.4 The revised AQIA considered all existing and proposed air emission sources to assess the cumulative emissions from the factory for comparison with relevant limits. The AQIA considered odour, dust (particulate matter) and products of combustion, such as oxides of nitrogen (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), polycyclic aromatic hydrocarbons (PAH) and carbon monoxide (CO).

6.2.5 The revised AQIA predicted odour from the modified factory would generally comply with the EPA's odour criteria of 6 odour units (OU) at all residential receptor locations. There would be marginal exceedances of this criteria at commercial receptors C1 to C7. These exceedances were considered imperceptible and resulting from higher quarterly monitoring results in the last four quarters due to coal

fuel source and the pellet plant stack (PPES). In addition, the revised AQIA predictions were consistent with the approved SSEEP and subsequent modifications. MOD 17 would not substantially change already approved odour impacts from the factory.

- 6.2.6 Emissions of particulates, including fine particles (PM<sub>10</sub> and PM<sub>2.5</sub>) from MOD 17 were predicted to comply with relevant criteria, when considered cumulatively with background levels at all residential receivers. A contemporaneous assessment (analysis of 1 year of background data plus predicted particulate emissions from the modified factory) showed one exceedance of the PM<sub>10</sub> 24 hour criteria (60.4ug/m<sup>3</sup> compared to criteria of 50ug/m<sup>3</sup>) at the nearest commercial receptor (C1) for one 24 hour period over the year. Further analysis showed the background concentrations account for 73% of the concentration, with boilers No.1, 2, 4, 5/6 and 8 contributing to 9% of total emissions and boiler No. 8 contributing to less than 1% of emissions for that day.
- 6.2.7 The revised AQIA also predicted emissions from the combustion of coal and gas in the boilers, referred to as the products of combustion. The air dispersion model predicted emissions of CO, hydrogen fluoride (HF), hydrogen chloride (HCl), polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs) and heavy metals would be below relevant criteria at all residential receivers. The revised AQIA assessed the NO<sub>2</sub> levels in accordance with the Approved Methods and predicted compliance with the criteria at all sensitive receivers.
- 6.2.8 The EPA reviewed the revised AQIA and advised the Department its comments had been adequately addressed. The EPA noted the revised assessment does not predict an increase in emissions for the majority of pollutants considered. However, the EPA noted there will be marginal changes to VOC discharge concentrations and substantial changes to PAH emissions. While PAH emissions are likely to increase, the EPA notes the increase will not result in concentrations above impact assessment criteria. Notwithstanding, the EPA has recommended conditions requiring post commissioning monitoring and verification of the PAH concentrations being emitted from boilers No. 2 and 4. The EPA has also recommended revised discharge limits for boilers No. 2 and 4 to reflect the proposed change in fuel mix.
- 6.2.9 With respect to the recorded exceedance of the PM<sub>10</sub> 24 hour criteria at receiver C1, while the EPA considers this significant and warranting further investigation, the EPA accepts that it is not as a result of changes to the facility and fuel mix proposed as part of this modification and therefore is not relevant to the assessment of this application. Instead, the EPA has advised it will separately be requiring the Applicant to undertake a site-wide pollution study of PM<sub>10</sub> emissions to investigate the most significant emissions sources and identify options to reduce offsite PM<sub>10</sub> contributions, which it will impose on the Applicant's existing EPL for the site.

#### **Amended Modification – Air Quality Impact Assessment**

- 6.2.10 Subsequent to amending the modification proposal (see **Section 5.5**), the Applicant submitted an amended and final AQIA on 19 June 2020 which provided an assessment of the installation of Product Dryer No. 9 and an additional stack to Starch Dryer No. 5 including revised dispersion modelling to accompany the previous revised AQIA.
- 6.2.11 The final AQIA was referred to the EPA for comment. The EPA confirmed the changes to the modification were not predicted to increase odour concentrations at residential receivers and ground level concentrations for particulate matter is not predicted to increase from the previous revisions of the AQIA. The EPA concluded there are no required changes to the previously recommended conditions.

## Department's Assessment

- 6.2.12 The Department has reviewed all revisions of the AQIA in conjunction with the comments and recommendations made by the EPA. The Department is satisfied the final AQIA sufficiently considers the additional air quality impacts of the modification alongside the existing operations of the Shoalhaven Starches facility.
- 6.2.13 While the modification will result in an increase in emissions of PAH and VOC concentrations, the Department notes emissions will remain compliant with the impact assessment criteria. Furthermore, the Department agrees with the recommendations of the EPA and considers post-commissioning monitoring and verification of boilers No. 2 and 4 as imperative as it will ensure boiler emissions achieve the emissions criteria limits specified in the EPL and are appropriately managed. Furthermore, the Department considers existing conditions of consent requiring the Applicant comply with the discharge limits of the EPL for all boiler stacks is acceptable in addressing the EPA's recommended changes to discharge limits for boilers No. 2 and 4.
- 6.2.14 The Department's assessment concludes the modifications to Shoalhaven Starches facility will remain below the existing impact assessment criteria and can be effectively managed through the imposition of the recommended modifying conditions.

## 6.3 Hazards and Risks

- 6.3.1 Modifications to factory processes and equipment have the potential to increase hazards and risks at the factory. Pinnacle Risk Management Pty Ltd (Pinnacle) prepared a Preliminary Hazard Analysis (PHA) to assess the potential hazardous events and corresponding risks associated with the modification, particularly the relocated Product Dryer No. 9 and proposed chemical storage tanks. The PHA was prepared in accordance with the Department's Hazardous Industry Planning and Advisory Paper (HIPAP) No.6 – Hazard Analysis. The PHA evaluated the level of risk to off-site land uses and compared this with the Department's land use safety risk criteria (detailed in HIPAP No. 4).
- 6.3.2 The PHA identified potential off-site risks from the production, handling and storage of hazardous materials including:
- flour, gluten and starch dust explosion
  - sodium hydroxide
  - hydrochloric acid
  - sanitisation cleaning liquid
  - hydrated lime
  - coal
  - Natural gas and biogas.
- 6.3.3 The potential hazardous events involving these materials are fires, explosions and release of corrosive substances to the environment. Scenarios that can cause fire propagation risk are:
- natural gas pipe failure
  - wheat and coal ignition
  - dust explosion.

- 6.3.4 The PHA identified the existing safeguards implemented at the site for the prevention, detection and mitigation of hazardous events relating to the modification.
- 6.3.5 The PHA concluded the risks from the modification would comply with the Department's risk criteria for fatality risk, injury risk, toxic exposure and propagation due to fire and explosion. The PHA concluded societal risk, area cumulative risk and environmental risk would be acceptable. The primary reason for the low risk levels is that any significant level of impact would be contained on site. The PHA provided recommendations to install explosion vents vertically and directed to safe locations and fire-rating the new switch room consistent with the recommendations made in the PHA for MOD 16.
- 6.3.6 The Department's Hazards Specialist reviewed the PHA and noted it demonstrates the risk from the site complies with the criteria adopted in NSW for new developments. The study also provides sufficient information on the safeguards to be implemented to ensure the low levels of risk are maintained. Based on the information provided, and assuming all safeguards are in place and maintained, the Department is satisfied the development does not impose an unacceptable risk to surrounding land uses.
- 6.3.7 The Department recommends the Applicant update the existing hazard studies and plans for the factory to include the modification as required by the existing conditions of consent. This includes the Site-Wide Fire Safety Study, Emergency Plan and Safety Management System. The modifications must also be included in subsequent hazard audits of the factory. The Department's assessment concludes the hazards and risks of the modification would be appropriately managed through the existing conditions of consent subject to updating the relevant hazard studies and plans.

## 6.4 Other issues

- 6.4.1 The Department's assessment is provided in **Table 3**.

**Table 3 | Assessment of other issues**

Findings	Recommendations
<b>Noise</b>	
<u>New Plant and Equipment</u>	
<ul style="list-style-type: none"> <li>The proposed relocation of the baghouse for Starch Dryer No.5, additional plant associated with the GD8 and SPB expansion has the potential to increase noise generated at the site.</li> <li>The Applicant provided a noise impact assessment (NIA) prepared by Hardwood Acoustics to assess the noise impacts associated with the modification and demonstrate compliance with the existing noise limits of the consent.</li> <li>The NIA identified the primary noise sources of the modification included the product dryer equipment, SPB processing plant and equipment, and the packing plant and equipment.</li> <li>Noise modelling undertaken in the NIA identified the predicted operational noise levels of the modification</li> </ul>	<ul style="list-style-type: none"> <li>Modify Condition 14J(e) to reflect changes to noise limit of exhaust fans.</li> </ul>

would comply with the existing noise limits at all sensitive receivers' subject to the implementation of construction recommendations made in the NIA. Recommendations provided in the NIA included minimum 150 mm wall and roof thickness and acoustically treated ventilation points.

- The EPA reviewed the NIA and provided no objections or comments on the modification regarding noise impacts.
- The Department reviewed the NIA and concluded the modification would comply with the existing noise limits subject to the implementation of the recommendations outlined in the NIA.
- The Department notes existing conditions requiring design verification prior to construction and noise validation monitoring after operation are sufficient in ensuring the noise limits will not be exceeded by the modification.
- The Department's assessment concludes the modification would not increase noise levels from the factory above existing limits. The Department is satisfied existing conditions of consent are suitable in managing the modification.

#### Flour Mill B Noise Validation

- MOD 16 included the construction and operation of flour mill B. Condition 14J(e) was imposed requiring exhaust fan silencers to not exceed a sound pressure level of 65 dB(A) when measured from a distance of 3 m.
  - During construction, a higher air flow capacity fan and silencer was required for one of the flour mill B exhaust which subsequently achieved a level of 68 dB(A).
  - The Applicant proposes to modify Condition 14J(e) to reflect the changes to exhaust fan and silencer performance.
  - The SEE identified the design noise goals for MOD 16 was a noise level of 74 dB(A) with all eight fans of flour mill B combined.
  - The SEE noted noise validation testing demonstrated constructed fans operated below the specified level of 65 dB(A) at 3 m in which the inclusion of one fan operating at 68 dB(A) flour mill B would still retain a combined noise level of 74 dB(A).
  - The Applicant is seeking to modify condition 14J(e) to instead specify a sound pressure level of 74 dB(A) to be met for all flour mill B fans combined rather than individual noise levels.
  - The EPA raised no concerns regarding the noise validation in its submission.
-

- The Department considers modifying condition 14J(e) will not alter the objective of the condition which is to limit the operational noise impacts of four mill B exhaust fans.
- The Department's assessment concludes the proposed modification of condition 14J(e) is acceptable and will retain the original intent of the condition imposed and recommends it be included in the modifying conditions.

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### Visual Impacts

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| <ul style="list-style-type: none"> <li>• The modification includes changes to the positioning and location of the facility's plant and equipment (see <b>Figure 5</b>). In particular, the relocated starch dryer no.5 baghouse will reduce the building height from 36 m above ground level to 30 m, construction of a service lift with a building height of 34.39 m adjacent to starch dryer no.5, while changes to the PDB and SPB will result in an increase in building footprints for these components.</li> <li>• The SEE provided an assessment of visual impacts of the modification, considering the visibility of the modified structures from seven key vantage points. The assessment noted the proposed structures are consistent with the scale and height of the facility's existing structures.</li> <li>• The assessment noted some new structures would be visible to passing motorists on Bolong Road and the urban area of Bomaderry but they would be viewed in the context of and as part of the prevailing scale of the facility. Views from North Nowra and Terara are more distant and partially screened by vegetation.</li> <li>• The assessment concluded the modification would not have significant adverse visual impacts given the scale and character is consistent with existing structures.</li> <li>• No concerns were raised by Council regarding the modification's impacts on visual amenity.</li> <li>• The Department is therefore satisfied the proposed modifications will blend in with the existing industrial character of the site and would have minimal visual impact.</li> </ul> | <ul style="list-style-type: none"> <li>• N/A</li> </ul> |
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### Flooding

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|---|---|
| <ul style="list-style-type: none"> <li>• The Applicant provided a flood impact assessment (FIA) prepared by WMA Water to assess potential impacts on flood levels, flows and velocities, given the site's location in an area of high hazard and floodway.</li> </ul> | <ul style="list-style-type: none"> <li>• Existing conditions of consent address Council's recommendations.</li> </ul> |
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- The FIA additionally provides a comparative assessment to the FIA undertaken for MOD 16 being the most recent flood study of the site.
- The FIA identified the modifications are proposed within areas previously assumed for plant and equipment, and subsequently present no increase to the 1% AEP flood level offsite.
- Furthermore, the FIA noted the proposed elevation of service conduit above ground would reduce the peak flood levels downstream of Bolong Road by less than 0.1 m.
- Council reviewed the FIA and advised it had no objections to the modification as there will be no increase in flood level outside of the Shoalhaven Starches site.
- However, Council provided recommended conditions of consent requiring engineer reporting on the structural adequacy of structures in the event of flood.
- The Department notes existing conditions of consent require the Applicant to provide a structural engineer's report to the Planning Secretary that demonstrates structures are designed from flood compatible materials and can withstand flood forces, prior to the commencement of construction.
- In addition, existing conditions of consent require the Applicant to update the development's Flood Mitigation and Management Plan prior to the operation of each modification.
- The Department considers the modifications to the Shoalhaven Starches facility will not result in an increase in the 1% AEP flood level offsite and can be appropriately managed through the existing conditions of consent.

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### **Traffic, Access and Parking**

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| <ul style="list-style-type: none"> <li>• The modifications to the SPB footprint require the relocation of 48 car parking spaces from the Maintenance Store and Workshop to the existing Area 3 car park north of Bolong Road to accommodate internal truck movements.</li> <li>• The Applicant has proposed 117 new car parking spaces to be located to the north of Bolong road within the Area 3 car park, adjacent to the existing gas depot.</li> <li>• The additional car parking spaces proposed accounts for the 48 car parking spaces required to be relocated as well as additional parking provided for a parking surplus.</li> <li>• Council provided no comments on the proposed additional car parking.</li> </ul> | <ul style="list-style-type: none"> <li>• Update approved site plans to reflect changes to car parking layout.</li> </ul> |
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- The Department considers the proposed additional parking is acceptable as it will accommodate the 48 car parking spaces required to be removed due to modifications to the SPB building and the provision of surplus parking for the facility.
  - The Department's assessment concludes the modification retains an acceptable amount of parking space at the facility and recommends approved site plans be updated to reflect the changes to the car parking layout.
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## 7 Evaluation

- 7.1.1 The Department has assessed the modification in accordance with the relevant requirements of the EP&A Act. On balance, the Department considers the modification is appropriate on the basis that the:
- modification is consistent with relevant strategic plans for the Illawarra-Shoalhaven region
  - modification would result in minimal environmental impact beyond the approved development
  - air quality would be maintained through implementation of mitigation measures to ensure compliance with air emissions limits.
  - operation of the overall factory, with new and relocated plant and equipment, would meet existing noise limits at residential receivers.
  - modification would have minimal impact on flooding and visual amenity.
- 7.1.2 The Department concludes the proposal is in the public interest and the modification is approvable, subject to conditions (outlined in **Appendix B**). This report is hereby presented to the Commission for determination.

## 8 Recommendation

8.1.1 It is recommended that the Independent Planning Commission:

- **considers** the findings and recommendations of this report
- **determines** that the application 06\_0228 MOD 17 falls within the scope of section 4.55(1A) of the EP&A Act
- **accepts and adopts** all findings and recommendations in this report as the reasons for making the decision to grant consent to the application
- **modify** the consent 06\_0228
- **signs** the attached approval of the modification (**Appendix B**)

Report prepared by: Shaun Williams  
A/Senior Environmental Planning Officer

Recommended by:



**Joanna Bakopanos**  
A/Director  
Industry Assessments

Recommended by:



**Chris Ritchie**  
A/Executive Director  
Regions, Industry and Key Sites

## 9 Determination

This recommendation is: **Adopted by:**

**Member of the Commission**

# Appendices

## Appendix A – List of Documents

The Department has considered the following documents in its assessment of the modification:

- Statement of Environmental Effects and Planning Report prepared by Cowman Stoddart Pty Ltd, dated 13 December 2019
- Addendum Statement of Environmental Effects and Planning Report prepared by Cowman Stoddart Pty Ltd, dated 19 June 2020
- Response to Submissions prepared by Cowman Stoddart Pty Ltd, dated 28 July 2020
- Flood Assessment prepared by Webb McKeown & Associates, dated 8 November 2016
- Air Quality Impact Assessment prepared by GHD Pty Ltd, dated 10 November 2016
- Noise Impact Assessment prepared by Harwood Acoustics Pty Ltd, dated 16 November 2018
- Submissions made on the modification application. Available on the Department's website at: <https://www.planningportal.nsw.gov.au/major-projects/project/26586>
- Relevant environmental planning instruments, policies and guidelines objects and relevant provisions of the EP&A Act.

## **Appendix B – Recommended Modification Instrument**

The recommended modification instrument for 06\_0228 MOD 17 can be found on the Department's website at:

<https://www.planningportal.nsw.gov.au/major-projects/project/26586>