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3<sup>rd</sup> August 2007

Project No. 00006511

## **ENVIRONMENTAL ASSESSMENT**

for

### **PROPOSED ASPHALT PLANT**

At

**Lots 14 & 15 Kennington Drive, Tomago, NSW**

for

### **TROPIC ASPHALT PTY LIMITED**

Prepared on behalf of  
**TROPIC ASPHALT PTY LIMITED**

By

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# **CERTIFICATION**

## **Submission of Environmental Assessment, prepared under the Environmental Planning and Assessment Act 1979, Part 3A**

This Environmental Assessment has been prepared on behalf of :-

**Asphalts Consulting & Testing Pty Ltd t/a Tropic Asphalt Pty Ltd**

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Of

**Lindsay & Dynan Pty Limited**

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For development at:-

Lots 14 & 15 Kennington Drive  
Tomago 2322

The development being:-

An asphalt plant and associated office and laboratory. The plant will include a batch tower, aggregate receival hopper and conveyor, recycled asphaltic product storage shed, aggregate storage bins, bitumen tank farm, filler silo, dryer, baghouse, stack, hot product storage bins, weighbridge, first flush tank, underground LPG tank and a weighbridge.

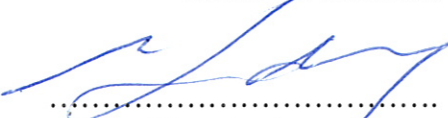
### **Certification**

I, MARK SPENCER, of Lindsay & Dynan Pty Limited, hereby certify that the Environmental Assessment contains all available information that is relevant to the assessment of the development to which this document relates, and that the document is neither false nor misleading.

  
.....  
(Signature)

3/8/07  
.....  
(Date)

I, MERVYN LINDSAY, of Lindsay & Dynan Pty Limited, hereby certify that the Environmental Assessment contains all available information that is relevant to the assessment of the development to which this document relates, and that the document is neither false nor misleading.

  
.....  
(Signature)

3/8/07  
.....  
(Date)

# 1 Executive Summary

Tropic Asphalt Pty Ltd are proposing the development of an asphalt plant to serve the Newcastle/Port Stephens area and regions further to the north, west and south. The site that was ultimately chosen for the development of the plant is Lots 14 & 15 Kennington Drive Tomago. The basis of selection of that site is as follows:-

- The site is located in a heavy industrial area which is specifically zoned for this type of development and additionally is contained within the Tomago Aluminium buffer zone.
- The site location provides excellent transport links to surrounding markets in all directions, and is close to raw materials suppliers.
- The site is a relatively level site, suited to the construction of an asphalt plant.
- The site is serviced by a road network that can accommodate the traffic to and from the plant in a manner that will minimise impact on local roads.
- The site is well serviced by utilities and other infrastructure, suitable for the plant.
- The Plant is designed to and will operate to provide a 24 hour service for the supply of asphalt to cope with the ever increasing demand for night and weekend roadworks

## Need for the proposed development

The plant will provide an efficient and competitive supply of asphalt to the Newcastle and Port Stephens area, as well as areas to the north, west and south. There is currently no asphalt plant located in the Port Stephens shire. The plant will add a necessary resource for the development and maintenance of the growing roads investment in the Hunter and North Coast areas. The plant will also supply product to an existing business carried on by Tropic Asphalts Pty Ltd

## Description of the proposed development

The plant will take aggregate and sand and heat and dry them before blending and mixing with bitumen, fillers and recycled asphaltic product to produce asphalt. The

asphalt plant has been designed to produce up to 150,000 tonnes per annum of asphalt and to operate for up to seven days per week and up to 24 hours per day if required.

Plant features incorporated to minimise environmental impacts

Enclosed receival handling and storage of all raw materials. This minimises the potential for dust emissions from ground storage bins and the emissions on recovery of materials with a front end loader and also keeps the material dryer. Both of these features are also energy saving.

- Automated handling, measuring and batching of raw materials via a covered conveyor system which minimises potential for dust emissions during transfer of material.
- The storage and mixing capacity of the plant is designed ensure the plant runs efficiently, avoiding the need for stop start operation, which increases efficiency and reduces trucking requirements. Large hot aggregate storage capacity and oversized pugmill to allow greater flexibility to minimise truck delays and energy lost in starting and stopping the plant.
- Bitumen is received in enclosed tankers, transferred into the bitumen storage tanks via fully enclosed lines, then pumped to the mixer via automated fully enclosed supply system. Venting to the bitumen tanks utilises activated carbon filters. The tanks will be roofed and contained in a bunded area.
- The heating and drying process utilises a modern bag-house to clean exhaust gases from the dryer, with the collected dust recycled back into the process.
- The plant has been designed to maximise the use of recycled asphalt product (RAP) milled during road works and so reduce the quantity of RAP being wasted to landfill and to conserve natural resources
- Incorporation of a first flush collection system with both a settlement zone and a sediment zone within the first flush holding tank, designed to clean run-off water from the site.
- The automated handling of cold feed aggregates eliminates the need for continuous operation of a front-end loader on the site. The only loading equipment will be within the vicinity of the RAP storage building.
- The heater dryer uses a gas-powered burner within the dryer and a variable speed exhaust fan which will minimise emissions from the dryer.

### Site Description

The site is located at the south side of Kennington Drive, directly to the east of an open drain, in the suburb of Tomago. It comprises an area of 4926 m<sup>2</sup>. The site is relatively level, with a fall of approximately 0.4 metres.

The site is located land zoned 4(a)-Industrial - General under the provisions of the Port Stephens Local Environment Plan 1997 (LEP 1997). This proposal is permissible with consent.

### Environmental Assessment

A consultation process has been undertaken with relevant authorities and other stakeholders, including nearby residential property owners. The outcome of that process has identified the specific issues that need to be addressed in this Environmental Assessment, and the outcomes are summarised follows:-

- Emissions

A detailed air quality and green house gas assessment has been prepared by Holmes Air Sciences, and is contained in Appendix H. The findings of this report are summarised in Section 6.3.

The report concluded that there will be no adverse impacts from dust or odour as a result of plant operation. Greenhouse gas emissions are minimised using best practice solutions in the design of the plant.

- Noise

A detailed noise impact study for the plant has prepared by Hunter Acoustics, and is contained in Appendix G. The findings of this report are summarised in Section 6.7.

The report found that the plant is unlikely to become a source of offensive or intrusive noise and in the event that noise mitigation is required in the future, these measures can be easily incorporated in to the design.

- Traffic

A traffic assessment report for the proposed development has been undertaken by B J Bradley & Associates, and is contained in Appendix F. The outcome of that study is summarised in Section 6.5.

The study found that the plant is ideally located to take advantage of the highway and main road transport links and that there will be minimal impact the existing road network.

- Stormwater management

A detailed surface stormwater management report plan has been undertaken by On-Site Environmental and is contained in Appendix I. The findings of this report are summarised in Section 6.4.

The plan includes measures designed to avoid deleterious impacts downstream from the plant. The quality of stormwater management will not significantly impact on the surrounding properties or on the downstream catchment.

- Energy issues

This plant utilises the most energy efficient technology available on the market today, and has the added advantage of the ability to recycle RAP. An assessment of energy issues is contained in Section 6.2.

The assessment concluded that there will be a net saving of energy utilised to produce asphalt for the existing market.

- Visual impact

It is intended to provide quality landscaping along the Kennington Drive frontage, and around in the vicinity of the car park and office.

It is considered that the visual impact of this plant will be consistent with the intentions of an industrial subdivision, with the plant designed to minimise its visual impact, and minimise its affect on the existing streetscape.

A assessment of visual issues is contained in Section 6.9.

- Social and economic issues

It is considered that this development proposal is ideally located to minimise social impact and to provide a positive improvement to the social environment by providing a modern asphalt plant in an area that will minimise transport times to markets, and enable transport routes to

and from the plant along existing main arterial routes, predominantly away from residential areas.

The proposed plant will improve the efficiency and competitiveness for supply of asphalt to the Port Stephens area, and enhanced community benefit derived from recycling of asphalt.

- Soil issues

An Acid Sulphate Soil Management Plan has been prepared by RCA Australia and is contained in Appendix K. Inclusions of this plan are summarised in Section 6.10.

The report indicates that acid sulphates may be present at the site and provides a plan for their management. As such, any acid sulphate soils encountered on site can be managed.

- Hazard issues

A preliminary risk screening is contained in Appendix J.

This preliminary risk screening has been prepared in accordance with SEPP 33, relevant Department of Urban Affairs and Planning documents and the Australian Dangerous Goods Code.

The preliminary risk screening found that the quantities and classes of hazardous materials that will be encountered on site do not reach the threshold to be classified as 'potentially hazardous'. Nor do the number of vehicle movements required to transport these materials reach the threshold of 'potentially hazardous'. Therefore the development is not considered hazardous and no preliminary hazardous analysis was required.

- Flora and fauna

A threatened species assessment has been undertaken by Ecotone Ecological Consultants and is contained in Appendix L. The findings of this report are summarised in Section 6.11.

The report concludes that the proposed development is considered unlikely to result in adverse affects on the overall biodiversity of the area due to the disturbed nature of the subject site and the relatively small area of land involved.

- Consultation Process

The consultation process included liaison with relevant authorities and meeting with nearby residents.

The issues identified as germane to the proposal were based on the results of this consultation process and are discussed in Section 6 of the Environmental Assessment.

There were no objections to the proposed development raised as a result of the consultation process.

#### Justification of the Proposal

Detailed justification of the proposal is set out in Section 9 of the Environment Assessment, which demonstrates that the objectives of the Environmental Assessment have been met in a manner that will minimise the impact to the surrounding environment, and provide an economically and environmentally sustainable asphalt plant

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## **2 Preliminary**

### **2.1 Background**

The proposed project is an asphalt plant located in a new industrial estate off Old Punt Road, Tomago. The plant is within the Tomago Aluminium Buffer Zone. Tomago is part of Port Stephens Shire and there is no existing asphalt plant within Port Stephens Shire. The nearest plants are Carrington to the south, Rutherford and Black Hill to the west, and Taree to the distant north.

### **2.2 The Proponent**

The proponent currently operates an existing asphalt laying business. The business services federal, state and local government, as well as the private sector, in the supply of maintenance and construction services for roads. The proposed plant has been sized to supply product to that business and is of sufficient size to support the growth of that business.

### **2.3 Scope of Statement**

This Environmental Assessment has been prepared in accordance with the Environmental Planning and Assessment Act, 1979, and the Environmental Planning and Assessment Regulations, 2000.

The development is a designated development under the Regulations, within the category:-

- *“Bitumen Pre-Mix or Hot Mix Industries with an intended production capacity of more than 150 tonnes per day, or 30,000 tonnes per annum”*

The preparation of this Environmental Assessment has been completed having due regard to the requirements of the Director of Planning with respect to the form and content of the Assessment.

The Environmental Assessment for this proposal identifies and assesses the environmental impacts of the proposed asphalt plant, and includes actions required to minimise the effects of those impacts, where appropriate.

## **2.4 Relevant Public Authorities**

All relevant public authorities have been consulted and comments received have been incorporated into this Assessment.

The public authorities contacted were:-

- o Port Stephens Shire Council
- o Roads & Traffic Authority
- o Hunter Water
- o Department of Planning
- o Department of Environment & Conservation
- o Department of Natural Resources
- o Worimi Local Aboriginal Land Council

Correspondence with these authorities is included in Appendix A.

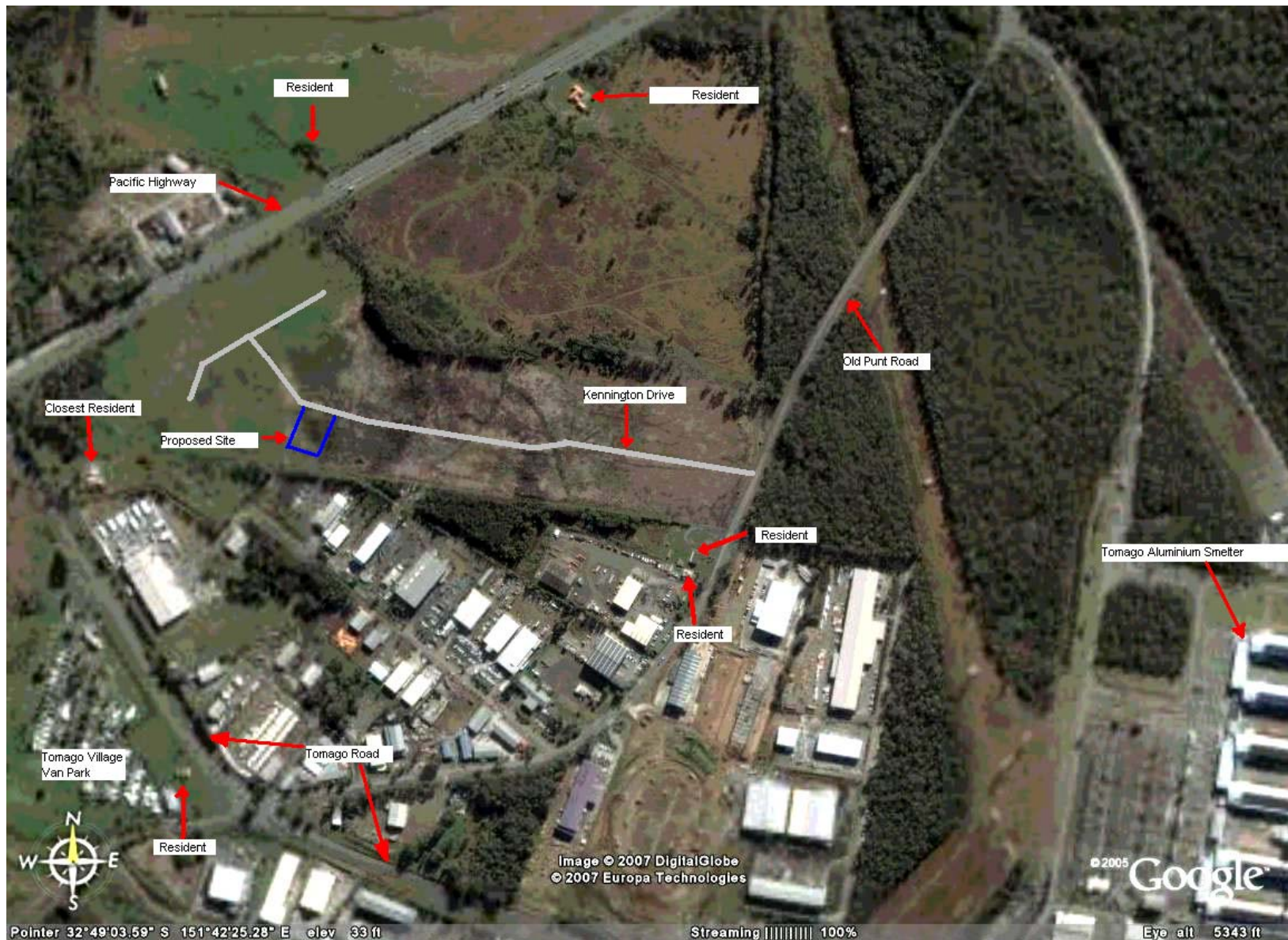
## **3 Location**

### **3.1 General**

The proposed location is at Tomago, 13km northwest of Newcastle, in the new industrial subdivision 'Hunter Industrial Park'. The site address is Lots 14 & 15 Kennington Drive, Tomago, with the real property description being Lots 14 & 15, DP 104 3561, Parish of Stockton, County of Gloucester.

Perusing the location plan in Figure 1 on the following page, it can be seen that the site is located close to the Pacific Highway, with Kennington Drive accessed from the highway by travelling east on Tomago Road and then north along Old Punt Road, or simply south along Old Punt Road, with the former route being the most likely.

Landmarks and properties of note in the area include Tomago Aluminium Smelter to the east, Tomago Village Van Park to the south and several residences in the area. The nearest residential subdivision is in Tarro, approximately 3.5km to the west



**Figure 1 :- Proposed Location & Surrounding Features**

### **3.2 Physical Site Characteristics**

The site has been cleared during subdivision and is now flat grassland. The land falls from approximately RL 4.2 (AHD) to approximately RL 3.8 (AHD) east to west.

Contiguous with the western boundary of the site there exists an open earth drain, which drains from north to south. At the southern boundary of the site there exists a swale drain over a drainage culvert. Both of which run parallel to the southern boundary and drain from east to west. At the western boundary of each lot, there is a pit which directs the runoff captured in the swale drain in to the culvert below. At the south-western corner of the site the culvert connects to the open earth drain.

### **3.3 Services and Access**

Water, sewer, telecom and electrical services are all available to the site. Currently the reticulated gas supply only reaches Tomago Road. Therefore, LPG gas stored in a tank on-site will be used until the reticulated gas supply is extended to the site.

The site is well located, relative to the main road network, with easy access to the Pacific Highway, the F3 freeway and the New England Highway. A detailed traffic study of the proposal is attached in Appendix F.

### **3.4 Context**

#### **3.4.1 Local**

The site is located in “Hunter Industrial Park”, Tomago. Hunter Industrial Park is a new industrial subdivision within the Tomago Aluminium buffer zone and currently there is limited development only being confined to two lots at the eastern end of the subdivision.. The subdivision is zoned 4(a) Industrial General.

Many heavy industries exist to the south and east of the proposed development. As such, the proposed development is consistent with the surrounding land uses and visual amenity.

As shown in Figure 1, there are seven residences within a 700m radius of the proposed site, with the closest being approximately 300m to the west.

### **3.4.2 Regional**

Tomago is approximately 13km north-west of Newcastle and approximately 13km south-east of Maitland, the two major localities in the region.

The site is close in proximity to the Pacific Highway which is a major regional transport corridor to areas to the north. To the south, the Pacific Highway connects to the New England Highway which serves areas to the west and in turn connects to the F3 freeway serving areas to the south.

## ***3.5 Overview of the Affected Environment***

### **3.5.1 Physical Characteristics**

The site is a level site that has been cleared for subdivision. The original vegetation has been destroyed with no trees retained and thus the site is now open grassland.

### **3.5.2 Adjacent Water Bodies**

The site is approximately 700m from the Hunter River, which is the outlet of the river system of the Hunter Valley.

### **3.5.3 Ground Water**

One of the sources of fresh water for the lower Hunter region are the Tomago sandbeds, which supply between 10-30% of the total water supply to that region. The site lay approximately 2km from the sand beds. A geotechnical investigation found that the proposed site is underlain by approximately 1m of fill over soft clay, with the water table approximately 0.8m below the surface at the time of investigation.

## **4 Description of the Proposed Development**

### ***4.1 Objectives of the Development Proposal***

The proponent currently operates an existing asphalt laying business. The business services federal, state and local government, as well as the private sector, in the supply of maintenance and construction services for roads. The proposed plant has been sized to supply product to that business and is of sufficient size to support growth of that business. Product surplus to the proponents need will be offered to the broader market.

The plant will provide an efficient and competitive supply of asphalt to the Newcastle and Port Stephens area as well as areas to the north.

The objectives of the proposed asphalt plant are:

- to provide a more proximate source of asphalt for Port Stephens and areas to the north, south and west
- to supply the proponents existing asphalt laying business operations
- to provide employment to Newcastle, Port Stephens and surrounding area
- to provide a means for the recycling of reclaimed asphaltic product
- to minimise and manage any deleterious environmental effects which may arise as a result of the construction and operation of the asphalt plant
- to provide a necessary resource for the development and maintenance of the growing road investment in the Hunter and North Coast areas.

The plant will be designed and constructed to meet the environmental expectations of the community as set out in this Environmental Assessment.

#### **4.1.1 Product produced and proposed end use**

The product produced by this plant is asphalt, principally for use in road construction. It is anticipated that the product will be supplied to the proponent and to clients particularly for the Port Stephens shire and areas to the north, but can also supply markets to the south and west.

#### **4.1.2 Proposed production, in terms of tonnage**

| <b>Capacity</b>                       | <b>Tonnage</b> |
|---------------------------------------|----------------|
| Maximum per hour                      | 150            |
| Typical Daily Production              | 200-500        |
| Peak Daily Production (8 hours)       | 1000           |
| 24 hour Peak Production               | 1500           |
| Anticipated Typical Annual Production | 75,000         |
| Anticipated Peak Annual Production    | 150,000        |

#### **4.1.3 Anticipated levels of performance in meeting required environmental standards**

On completion of the design and documentation, an Environmental Management Plan will be produced, which will ensure that the plant meets the environmental standards set out in this Environmental Assessment. The plant is a modern plant, designed for minimal environmental impact and it is the improved environmental factors of the process proposed for this plant that will result in an environmentally sustainable plant.

#### **4.1.4 Plans for future expansion**

The site does not lend itself to future expansions apart from the integration of new technologies should they become available and are economically and environmentally feasible.

#### **4.1.5 Relationship to any other works**

It is intend that this asphalt plant will be a stand-alone business. It will provide asphalt for the proponent's existing asphalt laying business, but for capacity in excess of proponent's demands it will also compete in the open market place to supply asphalt to all users.

### ***4.2 Description of the Proposal***

The proposal is to install an asphalt plant at the site with associated office and laboratory facilities.

Asphalt will be produced by mixing aggregates, recycled asphaltic product (RAP), bitumen and fillers. The raw feed (aggregates) will be delivered to the plant by truck. Bitumen will be delivered to the plant by road tanker and stored on site in bunded tanks. Aggregate will be delivered to the plant by truck and dog, discharged into a hopper, then stored in overhead storage bins. Fillers (eg lime) will be delivered in tankers and stored in overhead storage silos. RAP will be delivered to the plant by truck and stored at ground level in a dedicated building. The manufactured product will be delivered to the construction site by truck.

The process component of this plant is a proprietary, self-contained plant. The plant components and process is as described below: -

- o A ground hopper and truck unload system for receipt of aggregates.
- o Conveyors to transport the unloaded aggregates into eight above ground storage bins.
- o Feeders and conveyors to transport aggregates from the storage bins to a rotary dryer/heater drum for drying and heating the aggregates.
- o A batch plant with a screen deck for sizing the hot aggregates, five hot aggregate bins for storage of the sized aggregates, weigh hoppers and a pugmill mixer for weighing and mixing the aggregates with bitumen, fillers and RAP to produce asphalt.
- o An enclosed bucket elevator for elevating the heated aggregates to the top of the batch plant for screening into mix proportions.
- o A RAP storage building and a front end loader to load RAP into a feeder for conveying directly to the mixer or to the bucket elevator for incorporation into the product.
- o Four hot bitumen storage tanks for receipt of hot bitumen delivered by tankers. Bitumen is pumped from these storage tanks to the batch plant for mixing.
- o A lime filler silo for receipt of lime filler in tankers from which the lime is transported by screw conveyor to the batch plant for mixing.
- o A recycled filler silo for storage of baghouse reclaimed dust which is transported by screw conveyor to the batch plant for mixing.
- o A fabric filter baghouse for cleaning exhaust gases from the heater/dryer drum.

- o A fan and stack for exhausting the gases from the baghouse.
- o Two hot asphalt storage bins for the storage of final product if the product is not immediately loaded to trucks
- o A skip for transfer of product from the mixer to the storage bins as required.
- o A control room containing the plant switchboard and controls.
- o A weighbridge
- o A 60 tonne LPG underground tank for storage of the gas for use in the heater/dryer drum.
- o A soap spray station for lining truck bodies with an anti-stick film.
- o A first flush tank
- o An office and laboratory

The proposed arrangement of the plant is shown on the site plan and elevations contained in Appendix B. The configuration of the process component of the plant may be amended to suit final design of equipment, but will remain within the intent of the layout.

#### **4.2.1 Materials Handling**

An environmental feature of this plant is the covered receipt and handling of all raw materials. Additionally, the storage of all raw materials is fully enclosed and under cover. These features improve not only the environmental sustainability of the plant, but also provide long term economic benefits (in the case of aggregates, by reducing the moisture level, which in turn reduces energy usage for heating).

The method of delivery and handling of each material is as follows:-

- Cold feed aggregates: From various local sources, would be transported to the site by truck. Trucks will unload into a receipt hopper, and will be emptied at the rate of approximately 5t/minute by a reclaim conveyor. This 'dribble' feeding will minimise any dust emissions produced by a dumping effect. Product will be conveyed to the appropriate storage via an enclosed conveyor. When required, the aggregate will be conveyed from the storage bins to the process plant via an enclosed conveyor.
- The bitumen is delivered to the plant in tankers and pumped into the bitumen storage tanks within a bunded area. The bitumen is pumped into the pugmill via a pipeline.

- Fillers (predominately lime) will be delivered to the site by tanker and fed into the filler storage bin by pumping. The fillers will be conveyed into the pugmill by a enclosed screw conveyor.
- A dust collection system exhausts dust from the combustion process in the dryer is cleaned by a baghouse, where any dust particles are removed. Any dust collected is fed by an enclosed screw conveyor to a storage silo. This collected dust is then fed by enclosed screw conveyor to the pugmill for recycling.
- The fuel for heating will be LPG initially and natural gas when the reticulated town supply becomes available. LPG will be delivered to the site in tankers which will store the fuel in an approved storage tank.
- A significant component (up to 30%) of the feed can be recycled asphaltic product (RAP) recovered largely from the proponent's construction sites. The RAP will be delivered to the plant by truck. When required the RAP will be reclaimed by a small front-end loader to a feed conveyor to either the batch plant or directly to the pugmill.

The large volume storage of raw materials on the site will enable maximum flexibility for delivery of materials to the site when the product becomes available and used at the demand rate for the plant.

#### **4.2.2 Product Handling**

The product will be discharged from the pugmill into delivery trucks. In the event that there exists a need to store the product for a short time, the product will be discharged into a skip and then elevated to the hot storage bins. The product will be discharged from these hot storage bins directly into trucks which will deliver the product to the market place.

#### **4.2.3 Heating Systems**

The principal heating system is a gas-fired burner within the dryer, which will be used to dry and heat the cold aggregate. The hot storage bins and bitumen tanks will be electrically heated.

#### **4.2.4 Production, safety systems and management practices for handling of materials**

##### **4.2.4.1 Storage and handling of products**

All hydrocarbon-based products will be contained within a bunded storage area which will possess a maximum capacity in excess of 110% of the largest storage tank. The bunded area will be roofed to minimise rainwater ingress.

All cold feed materials, will be enclosed and undercover when stored and transported. These measures will minimise any spillage or dust emissions from the storage and handling of these products.

Recycled asphaltic product (RAP) does not emit dust but nevertheless is to be stored in a building. Housing it within a building will keep it dry, thus reducing the energy requirements in the re-heating of the product.

The truck parking area at the delivery point for hydrocarbon products will have a kerb around the discharge point of the tanker. The area enclosed will be filled with sand and in the event of any spillage, the bitumen will be compartmentalised and bind with the sand. The affected sand will then be collected and stored as RAP.

##### **4.2.4.2 Emission Control**

Dust emissions from the combustion process are exhausted via a bag filler, which collects the dust and recycles it back into the process. Clean gas is then exhausted to the atmosphere via a stack.

The lime/filler silo will have a bag filter with overflow discharge to the ground.

##### **4.2.4.3 Fire protection**

The production process requires heating of aggregates by a gas fired burner in the dryer, then mixing of that pre-heated aggregate with heated bitumen at a temperature of approximately 160°C.

Gas (natural or liquid petroleum) will be reticulated on site by underground mains where possible.

The potential hazard in the operation of the plant is the ignition of the bitumen by localised heating above the ignition temperature, in the presence of oxygen. This can occur in the bitumen tank during pre-heating, or within the pugmill when it is being added to the pre-heated aggregate. It could only happen where the materials are overheated. Such occurrences are prevented on modern plants by the use of automatic sensing and temperature control, together with appropriate automatic or semi-automatic shut-down procedures.

The design that would be incorporated into this plant will be similar to other plants operating throughout Australia and New Zealand.

Neither Lindsay & Dynan Pty Ltd nor Tropic Asphalt Pty Ltd are aware of any incidents in asphalt plants over the past twenty years that would give concern, bearing in mind that there are over one hundred asphalt plants utilising similar heating methods currently operating throughout Australia.

Any fire occurring in the pugmill would be limited to a short duration due to the lack of a continual fuel supply. Little or no damage would result, and minor impacts of such an event would be localised damage to the plant area itself.

#### **4.2.4.4 Process protection mechanisms**

The plant will incorporate a temperature control system and warning facilities to prevent overheating.

The control system is a modern, automated control system which accurately meters the quantity of product being fed through the plant, the quantity stored in the hot storage bins and measures the discharge rates from the hot storage bins.

The dust and fume control systems utilise the latest technology and will provide a low emission plant.

The control systems for the facility will incorporate warning alarms in the event that any of the normal control mechanisms fail.

Adequate fire fighting equipment will be installed within the plant to provide protection in the unlikely event of a fire. Such fire will be controlled by foam generating equipment, as well as other more conventional methods.

Normal operating procedures will include acknowledgment of potential fire risk, however slight, and the operating staff will be trained to both reduce the opportunity for fire and to quickly react to any outbreaks in accordance with the relevant Hazard Industry Planning Advisory Papers prepared by Planning NSW.

#### 4.2.5 Site water management system

**The area on the site will be divided into two catchments, as follows:-**

Catchment 1 “Dirty” area, that could be contaminated with aggregate fines

This includes the aggregate unload platform and all areas to the south including RAP and aggregate storage, tank farm, truck soap down area and the plant itself.

Catchment 2 All areas to the north of catchment one are designated clean areas

These clean areas will discharge directly to the Council Stormwater system.

##### Catchment1

Catchment 1, the “dirty” area potentially containing aggregate fines will be flushed from the site into the first flush storage tank. All areas within this catchment will fall to the first flush storage tank. The storage tank will have a capacity of  $65\text{m}^3$ , which is in excess of the total area of this catchment (approximately  $3350\text{m}^2$ ) times 15mm, plus an additional 30% of the capacity contained in the settlement tank to remain as a settlement zone. This 15mm has been adopted as recommended by Table 2 of the DEC guideline, “Stormwater first flush pollution”. When the first flush settlement tank is filled with the first flush run-off, further run-off from this catchment will bypass the tank and flow directly to the adjacent drainage channel. The first flush tank will be designed to collect any aggregate contamination from this area, and contain it within the first flush tank.

None of the catchments have potential to contain any significant hydrocarbons other than bitumen. Bitumen is a heavy oil with negligible solubility. Any spillage of this product will be collected in the first flush system and measures described below will be taken to ensure it is not a threat to contamination of waterways.

To prevent hydrocarbon contamination escaping beyond the site the following measures will be employed:-

- Bitumen tanks stored in bund with capacity 110% of any tank. The bund shall be roofed to prevent rainwater ingress and thus a drainage

pit and associated oil separator will not be required and any bitumen spill will be compartmentalised and an oil separator not necessary.

- The bitumen tankers will back up to an enclosed kerbed area under the tanker discharge point. This area will be filled with sand and any bitumen spilled during delivery will be captured, absorbed into the sand and recycled into the process with the RAP.
- A cabinet will be placed inside the bitumen tank bund and this will be filled with screw couplings for the receipt of bitumen from a road tanker. The cabinet has a retention tray below the coupling where any drips or spillage of bitumen will collect. The tray is approximately 750mm deep, will hold a minimum of 200 litres of bitumen and is fitted with a heater. The tray will be emptied on a weekly basis and the collected bitumen will be recycled.
- In the unlikely event of a bitumen spill which flows overland, the bitumen will flow to the first flush. Any existing water in the first flush will cool the hot bitumen, which will then plug the under-weir leading to the outlet point and thus contain the spill within the first flush. In the event that a plug is not formed, a pit with flop-gate will be positioned between the by-pass and the drainage swale at the rear of the property to prevent the bitumen from reaching the stormwater system. In the event of a bitumen spill the flop-gate will be manually closed thus prevent bitumen contaminant egress to the stormwater system. Any solid bitumen collected in the first flush tank will be mechanically removed and recycled.
- Any hydrocarbons that may be entrained in the run-off will be prevented from site egress via a underweir skimming system

The first flush storage tanks will be emptied within five days after any storm event. It will be emptied after visual inspection of the quality of the water to confirm it is free from hydrocarbon contamination and turbidity. The upper 70% of the first flush tank will be pumped into the stormwater system via a floating inlet submersible pump. If the water is turbid, it will be treated with flocculants such as gypsum, to accelerate the

settlement of sediment. In the unlikely event that it contains hydrocarbons, it will be treated by a contract waste disposal company

The specified frequency of emptying of the settlement zone will provide adequate settling time, without jeopardising the quality of run-off while the tank is still full. The plant will be a clean plant, because of the enclosed storage.

### ***4.3 Other Operational Factors***

#### **4.3.1 Hours of operation**

The plant will be capable of 24 hour operation and, when demand dictates, these capabilities will be utilised. This production may include deliveries of raw materials, production of asphalt, and load out of asphalt onto delivery trucks.

There will normally be six employees on the plant when the facility is operation. There will be parking provisions for these employees, and also supplementary parking for another vehicle as well as handicapped parking. It is not anticipated that there will be any other vehicles parking, other than occasional truck queuing on the site.

The only other plant operating on the site is a front end loader for handling of RAP within the RAP storage building, and for dry cleaning of the site including clean up of any spillage.

#### **4.3.2 On site truck management system**

The plant possesses adequate area for truck queuing. There is the possibility that, from time to time, there will be trucks waiting to discharge raw materials. The load out facility for manufactured asphalt, however, is a very efficient system that should minimise the queuing time for trucks loading this product, and it is anticipated that all trucks will be able to queue within the plant area on the occasions when queuing occurs.

#### **4.4 Site Layout Plans**

The site layout and schematic plans are contained in Appendix B of this Environmental Assessment.

#### **4.5 Site Preparation and Construction**

The site is a disturbed site, with the only remaining vegetation being grass. The layout of the site has been designed to incorporate practical vegetation where possible, which will provide natural screening to aid in reducing the visual impact of the plant.

The construction will involve excavation of the truck unload pit and tunnels from this pit to contain the conveyors to the overhead storage bins. There will also be excavation for the underground LPG. During subdivision the site was filled above natural and will be filled further during this project to allow overland drainage and adequate ramp height for the truck unload pit. The site will be raised to a maximum 1.4m above existing ground level at the unload hopper.

The process infrastructure will comprise an underground LPG tank, concrete in-ground pits and footings, a material handling system, steel storage bins, hoppers, tanks, etc., the tank farm, including bunded enclosure, drainage works, RAP storage building, and the process equipment, including stack and baghouse.

Civil works comprise roadworks, stormwater, and first flush stormwater management system, boundary fence and gates, and landscaping.

Control/Management works comprise an office, laboratory and control building.

It is anticipated that the construction period will be approximately 20 weeks, but could increase, depending on availability of tradesmen, timetable for supply of critical equipment, and weather conditions.

Construction works will be undertaken during normal working hours, from 6.30am to 5.00pm, with some extended hours, and weekend work as required to maintain construction timetable.

During earthworks, and until the roads and pavements are completed, the site shall be protected from erosion and the adjacent waterways protected by an erosion and sediment control system which is as set out on the Erosion and Sediment Control Plan which is located in Appendix C.

The preliminary design levels confirm that there will be a net shortfall of fill material on the site, so all excavated material will be utilised as fill. As acid sulphate soils have been identified on this site, all excavated material and exposed faces will be treated with lime to neutralise any acid sulphate soil present. Further detail of these measures can be found in the acid sulphate soil management plan prepared by RCA which is located in Appendix K.

#### ***4.6 Consideration of Alternatives and Justification of Proposal***

The volume of asphalt purchased by Tropic Asphalt warrants the investment in an asphalt plant to service their current market and to accommodate the growth of that market. The plant will also add a necessary resource for development and maintenance of the growing roads investment in the Hunter and North Coast areas.

The objective in site selection was to have a site located geographically to maximise use of major transport links, both for delivery of product and receipt of raw materials. Two other locations were considered as potential sites for the asphalt plant: a mine site in Teralba and an industrial block in Toronto. Both sites were considered too close to an existing asphalt plant and were farther away from raw material sources. The site chosen has the advantage of potential to service the Port Stephens area and areas north.

The objective in selection of a production process, was to have a modern energy efficient process with excellent environmental outcomes and the ability to recycle A

secondary objective was to choose a process that enables production of small quantities of specialised products.

After the process was selected, the plant was then laid out to suit the site. The objectives in the layout of the site were as follows:-

- 1) Minimise the visual impact from Kennington Drive
- 2) Minimise noise levels by locating noise generating plant behind non-noise generating plant to buffer noise to sensitive receptors
- 3) To provide continuity of truck movement and minimise truck queuing and idling time
- 4) Develop a plant that can utilise quantities of RAP

The selection of the preferred plant arrangement, process and site can be justified as follows:-

- The site that has been chosen is located in a large industrial zoning, within the Tomago Aluminium Smelter buffer zone, and in this context will have negligible impact upon residential areas. There are seven residences within a 700m radius of the site. The closest resident is 300 m to the west of the site. The closest residential cluster is the mobile home park (Tomago Village Van Park) approximately 400m south. The nearest residential subdivision is in Tarro, approximately 3.5km to the west
- There exists no asphalt plant within the Port Stephens Shire. Currently, the closest plant is in the Newcastle local government area. The location of the proposed plant will more conveniently service the demand within Port Stephens Shire.
- Additionally, the close proximity to the Pacific Highway will allow greater access to markets further north, an area currently serviced from Rutherford, Newcastle or Taree.
- The site is located close to sources of aggregate, with quarries at Brandy Hill, Seaham and Paterson and fine aggregate sources (sand) at Stockton
- The plant is located in an area that is able to provide a suitable labour force, without the need for long travelling times.
- A traffic study confirmed that there is negligible impact to surrounding roads due to the presence of this plant.

- An emissions study confirmed there is negligible impact resulting from plant emissions.
- An acoustic study found that the proposed plant will be unlikely to become a source of offensive or intrusive noise.
- The stormwater run-off collection system will be designed and constructed to achieve minimal impact on the stormwater catchment.
- The economic and environmental sustainability of this plant is enhanced by its ability to utilise Recycled Asphaltic Product (RAP) and the determination of the Principal to develop a plant that can utilise RAP was a key objective.

#### ***4.7 Consequences of Not Undertaking the Development***

- Failure to proceed with this development will deprive the Port Stephens Shire and surrounding areas of proximate access to modern asphalt plant.
- Failure to proceed will deprive the Hunter area of a valuable resource to service the continued growth in infrastructure.
- Other plants in the Newcastle region have generally not been purpose designed to utilise recycled asphaltic product. An environmental cost of not developing this plant would be the increased quantities of RAP that would be disposed to landfill at substantial economic and environmental disadvantage to the broader community. Alternatively, the product could be transported to plants in Sydney that can utilise RAP, however this would increase transport costs and generate increased traffic congestion.
- A modern, efficient asphalt plant, such as the one proposed for this site, enhances the competitiveness of the industry. The proponent also operates an asphalt laying business, which this asphalt plant will supply, in addition the market at large. A consequence of not undertaking the development is loss of increased competition and the use of local resources within the both the asphalt supply and asphalt laying industries.

## **5 Identification and Prioritisation of Issues**

### **5.1 Overview of Methodology**

All relevant government authorities and surrounding land-owners have been contacted in order to identify and prioritise environmental issues.

#### **5.1.1 Responses from Relevant Authorities and Stakeholders**

##### **5.1.1.1 Department of Planning (DoP)**

The NSW Department of Planning co-ordinates the referral of proposals and liaises with the appropriate agencies for comment in the preparation of the Director-General's requirements (DGR). The Director-General's requirements outline the broad requirements for the Environmental Assessment, relevant technical and policy guidelines and authorities they recommend be consulted .

Additionally, the DGR lists key issues to be addressed in the Environmental Assessment. The key issues listed for this proposal were:-

- Air Quality
- Noise
- Traffic
- Water and Soils
- Hazards and Risk
- Waste Management
- Flora and Fauna
- Aboriginal Heritage

Additionally, confirmation was sought from the Director General that this project would be of a kind described in SEPP (Major Projects) 2005 and therefore a Major Project, to which Part 3A of Environmental Planning & Assessment Act 1979 applies. On March 13, 2007, Lindsay and Dynan received correspondence from the Department of Planning stating "on February 21, 2007, the Director-General of the Department of Planning, as a delegate of the Minister of Planning, formed the opinion that the proposed asphalt plant is a Major Project to which Part 3A of the Act applies."

#### **5.1.1.2 Department of Natural Resources (DNR)**

DNR stated that DoP co-ordinate the referral of proposals and at the time of correspondence DNR Newcastle had no record of DoP referral in this matter. However, they supplied the following information for our information

- No permit is required under Part 3A of the *Rivers and Foreshores Improvement Act 1948*;
- No consent required under Section 256 of the *Water Management Act 2000 (WMA)*, as land is not within a declared floodplain;
- The land is not within an area administered under the *Hunter Water (Special Areas) Regulation 2003*; and
- The proposed development lies within the Water Sharing Plan (WSP) for the Tomago Tomaree Stockton Groundwater Sources under the WMA. Any proposal to access groundwater need to satisfy the rules of the WSP.

There are no plans for the plant to access any groundwater sources therefore the Water Sharing Plan does not apply.

#### **5.1.1.3 Department of Environment and Conservation (DEC)**

DEC replied through the DoP referral process and we were forwarded correspondence from the DEC when the DGR were received by us. DEC requested the following issues addressed

- Cumulative impact on air quality, including potential odours;
- The potential impact on noise amenity of the local area from the operation of the plant and equipment and increased traffic movements;
- Greenhouse Gas Emissions;
- Impacts on water quality and onsite use of wastewater;
- The potential impacts on Threatened Species, Flora, Fauna and Endangered Ecological Communities and their habitats;
- The potential impacts on Aboriginal Cultural Heritage; and
- The handling of all stored chemicals and oil and the disposal of waste.

DEC stated that based on the information provided, the project will require an environmental protection licence “to both carry out scheduled development work: and to carry out scheduled activities”.

DEC were contacted after the DGR were received and Lindsay & Dynan were informed that the DEC had no further comment beyond those outlined in the aforementioned correspondence.

#### **5.1.1.4 Roads and Traffic Authority (RTA)**

RTA provided a response highlighting the fact that they have power in relation to road works and the like on the classified road network. The Pacific Highway and Tomago Road are classified roads and RTA consent is required for traffic control and RTA concurrence, with council consent is required for other works within the road reserve. Council is the roads authority for all public roads in the area.

RTA stated that a traffic study should be undertaken and should address the impact of the development on the Pacific Highway and Tomago Road intersections with Old Punt Road.

#### **5.1.1.5 Hunter Water**

Hunter Water provided an informal response stating that the proposed site lay outside the Tomago Sandbeds 'special area', although it is close to the border.

Key issues to be addressed are:-

- Sewerage Facilities
- Aquifer Interference
- Airborne Pollutants
- Safe Storage and Handling of Fuels/Chemicals
- Stormwater and Surface Runoff Management

#### **5.1.1.6 Port Stephens Council**

Port Stephens Council (PSC) did not provide a formal response. In discussions with PSC they stated that the Port Stephens Development Control Plans (DCPs) need to be complied with. Additionally, they would like to see general environmental issues relevant to an asphalt plant dealt with: issues such as air quality, noise, traffic and the like.

#### **5.1.1.7 Worimi Local Aboriginal Land Council**

Worimi Local Aboriginal Land Council (WLALC) were informed of the proposed development and supplied with the results of the Aboriginal cultural heritage survey that was carried out as part of the Statement of Environmental Effects for the 'Hunter Industrial Park' subdivision.

WLALC responded that their only requirement was that it was 'imperative that WLALC Site Officers are invited to participate in all earth moving activities', which, it should be noted, was the recommendation and intention of the proponent prior to consultation with WLALC.

#### **5.1.1.8 Proximate Residents**

As part of the open consultation process, all nearby surrounding residents were identified and informed about the project. This involved meeting six of the seven (including the manager of the van park) and outlining the proposal and discussing any concerns they had. We were not able to confer with the seventh resident, as they were interstate. We were informed by his neighbour that it was "very unlikely he would have any objection" to the proposal and the neighbour stated that he would inform the resident of the proposal when next they met.

All residents consulted had no objection to the proposal and the majority had no particular concerns. Any issues that were identified by the residents were those for which specialist studies had already been undertaken (ie. particulate fall out, traffic, noise)

For privacy reasons, the details of residents consulted have not been included in this public document, but are available upon request.

### **5.2 Outcomes of the process**

This Environmental Assessment has been prepared in accordance with Planning NSW's 'Bitumen Works – EIS Guideline'.

The issues that have been identified are as follows:-

- Air quality impacts (particularly dust and odour) (**Section 6.3**)
- Noise impacts (**Section 6.7**)
- Transport and traffic impacts (**Section 6.5**)

- Water and waste water management (**Section 6.4**)
- Impact upon soil (particularly risk of acid sulphate soils) (**Section 6.10**)
- Hazards and risks associated with the proposed project (**Section 6.13**)
- Waste management (**Section 6.14**)
- Impact upon flora and fauna (**Section 6.11**)
- Aboriginal heritage (**Section 6.12**)
- Energy efficiency issues (**Section 6.2**)
- Social and economic impacts (**Section 6.6**)
- Visual impacts (**Section 6.9**)
- Health impacts (**Section 6.8**)

## **6 Environmental Assessment**

### **6.1 Relevant Planning Provisions**

The following planning instruments are applicable to the project:-

- Environmental Planning & Assessment Regulation 2000
- State Environmental Planning Policy (Major Projects) 2005
- State Environmental Planning Policy No. 71 – Coastal Protection
- State Environmental Planning Policy No.33 – Hazardous & Offensive Developments
- Environmental Planning & Assessment Act 1979
- Hunter Regional Environmental Plan 1989
- Port Stephens Local Environmental Plan 2000
- Port Stephens Development Control Plans
- Protection of the Environment Operations Act 1997

The relevant provisions of each instrument are outlined below.

#### **6.1.1 Environmental Planning & Assessment Regulation 2000**

Schedule 3 of this planning instrument outlines those developments that are classified ‘designated development’. The proposed asphalt plant meets the criteria for designated development under Part 5 ‘Bitumen pre-mix and hot-mix industries’:-

- 1) *Bitumen premix or hot-mix industries (being industries in which crushed or ground rock is mixed with bituminous materials):*

- (a) that have an intended production capacity of more than 150 tonnes per day or 30,000 tonnes per year*

## **6.1.2 State Environmental Planning Policies**

### **6.1.2.1 SEPP (Major Projects) 2005**

Schedule 2 of this planning instrument outlines ‘specific sites’ which trigger assessment under Part 3A of the Environmental Planning & Assessment Act 1979, for which the Minister will be the consent authority.

Part 1 of schedule 2 states

- 1) Development within the coastal zone for any of the following purposes:*
- (e) the following types of industries (other than mining or extractive industries) but only if they are:*
  - (i) designated development, and*
  - (ii) in the case of the metropolitan coastal zone—wholly or partly in a sensitive coastal location:*

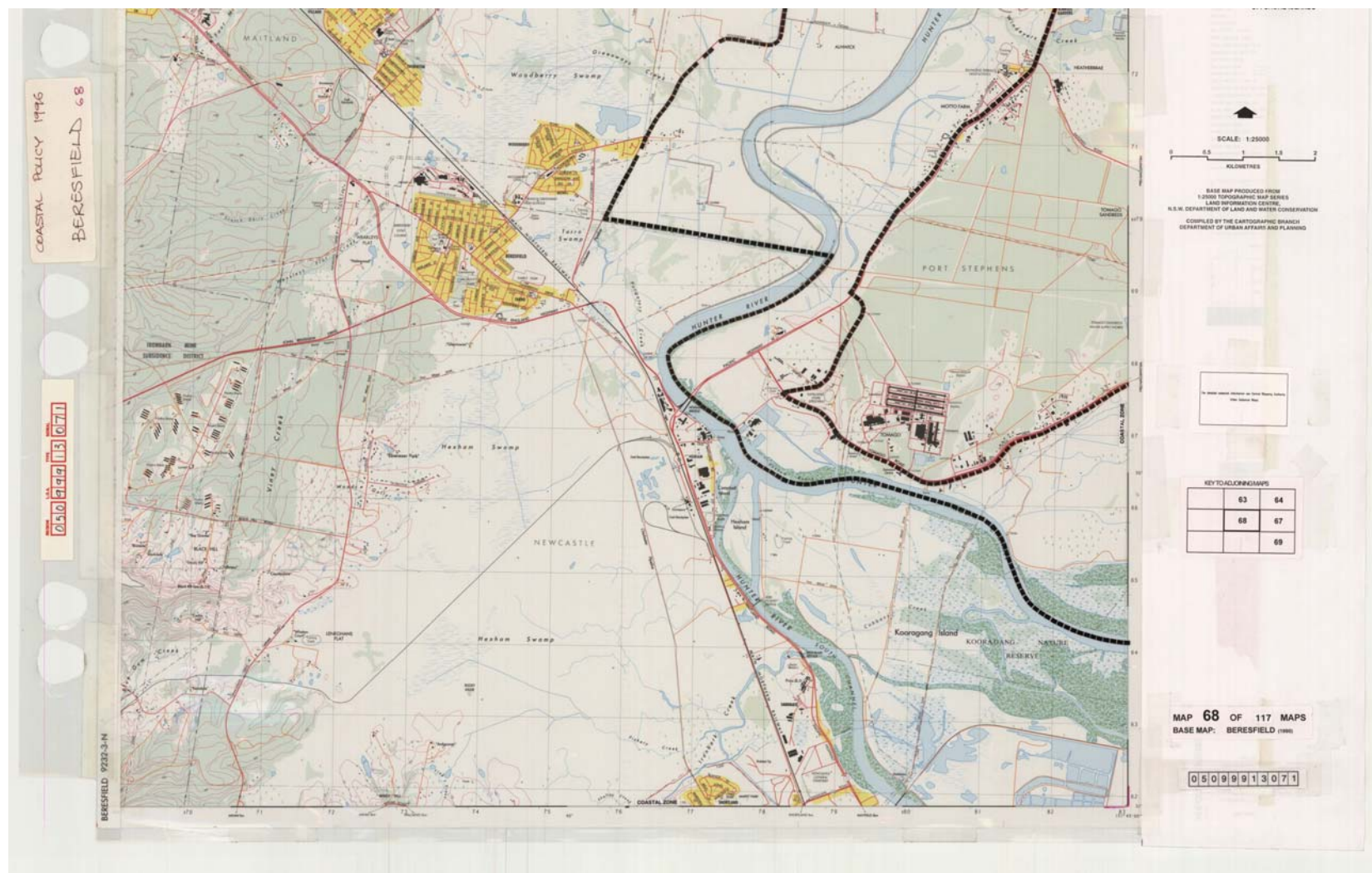
Under item 1(e) **bitumen pre-mix industries** is listed.

**coastal zone** means the coastal zone within the meaning of the *Coastal Protection Act 1979*

The Coastal Protection Act provides maps outlining the areas that are classified as within the coastal zone. Figure 2 on the following page shows that the proposed location falls within the coastal zone.

As outlined in Section 6.1.1 of this report, the project is classified ‘designated development’ and therefore meets the criteria of Schedule 2, Part 1 of SEPP (Major Projects)

As stated in section 5.1.1.1, “on February 21, 2007, the Director-General of the Department of Planning, as a delegate of the Minister of Planning, formed the opinion that the proposed asphalt plant is a Major Project to which Part 3A of the Act applies.”



**Figure 2 :- Coastal Zone Delineation**

### 6.1.2.2 SEPP 71 (Coastal Protection)

This policy applies to those projects undertaken in the ‘coastal zone’ as defined in section 5.2.1 and Figure 2 of this report:-

- 1) This Policy applies to land the whole or any part of which is within the coastal zone,*

Clause 8 of this planning instrument outlines the matters for consideration. These are as follows:-

| <b>Matter for Consideration</b>                                     | <b>Where addressed in this EA</b> |
|---------------------------------------------------------------------|-----------------------------------|
| Public access to foreshore                                          | N/A                               |
| Suitability of development                                          | §4.6                              |
| Affect upon amenity of foreshore                                    | §6.9                              |
| Scenic qualities of the NSW coast                                   | §6.9                              |
| Measures to conserve animals and their habitats                     | §6.11                             |
| Measures to conserve fish and their habitats                        | N/A                               |
| Existing wildlife corridors                                         | §6.11                             |
| Impact of coastal hazards on the development                        | N/A                               |
| Measures to reduce conflict between land and water based activities | N/A                               |
| Measure to protect Aboriginal cultural places, beliefs & customs    | N/A                               |
| Likely impact of development on water quality                       | §6.4                              |
| Conservation/Preservation of Aboriginal cultural heritage           | §6.12                             |

### **6.1.2.3 SEPP 33 (Hazardous & Offensive Industries)**

This planning instrument applies to those industries which can be categorised under the policy's definition of 'potentially hazardous industry' or 'potentially offensive industry'.

As the proposed development is industry, requires development consent and requires a license from the EPA then SEPP33 applies.

The Director General's requirements state that a preliminary risk screening be completed in accordance with SEPP 33, and where necessary a Preliminary Hazard Analysis (PHA) undertaken. The preliminary risk screening can be found in Appendix J and the results are summarised in Section 6.13.

### **6.1.3 Environmental Planning & Assessment Act 1979**

Due to the provisions of the SEPP (Major Projects), the proposed asphalt plant falls under Part 3A of this act, is classed as a Major Project and consequently the Minister is the consent authority.

### **6.1.4 Hunter Regional Environmental Plan 1989**

As the proposed asphalt plant meets the criteria for Part 3A of EP&A Act, this planning instrument is not directly applicable, however the project is consistent with the intentions and objectives of the Hunter REP.

*The objectives of this plan in relation to planning strategies concerning industrial development are:*

- (a) to ensure that sufficient zoned and serviced industrial land is provided in locations appropriate to the needs of industry, while ensuring protection of the environment, and*
- (b) to promote the distribution of employment in secondary industry in a manner compatible with the availability of services and distribution of population*

### 6.1.5 Port Stephens Local Environmental Plan 2000

The site is zoned 4(a) Industrial – General under the Port Stephens Local Environmental Plan. The objectives for this zoning are:-

- (a) to enable the development of a wide range of industrial, service and storage activities and a limited range of business and retail activities, and*
- (b) to allow industrial development only after comprehensive hazard analysis and risk assessment provide adequate safeguards designed to protect the surrounding environment and ecological balance, and*
- (c) to regulate industries in proximity to urban localities and to ensure that adequate buffers are provided in the vicinity of adjacent zones, so that activities near the boundary of an adjacent zone will not have a significant detrimental effect on the amenity of that zone, and*
- (d) to enable the most efficient and effective industrial development of waterfront industrial land by encouraging associated waterfront land uses sympathetic to the environment and ecology of the waterfront lands, and*
- (e) to allow commercial, retail, residential, or other development only where it is associated with, ancillary to, or supportive of, industrial development, and*
- (f) to limit development for the purpose of bulky goods salesrooms or showrooms, and*
- (g) to encourage a high standard of design and amenity in industrial areas.*

As the proposed asphalt plant meets the criteria for Part 3A of EP&A Act, this planning instrument is not directly applicable. However, the project is consistent with the intentions and objectives of the Port Stephens LEP.

The subject site falls under class 3 land as shown on the acid sulphate soils maps referred to in the LEP. Therefore any:-

- Works more than 1 metre below the natural ground surface*
- Works likely to lower the watertable to a depth of more than 1 metre below the natural ground surface*

will require the preparation and submission of an acid sulphate soil assessment and management plan. This plan has been undertaken and can be found in Appendix K, with a summary of the findings located in Section 6.10.

### 6.1.6 Port Stephens Development Control Plans

Port Stephens Development Control Plan PS4 is a control plan for commercial and industrial development. The relevant requirements for compliance with PS4 are:-

| <b>Requirement</b>                                                                              | <b>Compliance</b>                                     |
|-------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| <u>Floor Space Ratio:</u><br>Does not exceed 1:1 (floor area :site area)                        | Proposal Complies                                     |
| <u>Building Lines (from PS10):</u><br>6 metres to front property/road boundary of non-Main road | Proposal Complies                                     |
| <u>Setback:</u><br>NIL unless site adjoins reserve or residential properties                    | Proposal Complies                                     |
| <u>Height Limits:</u><br>15m for buildings.                                                     | Proposal Complies –<br>See discussion below           |
| <u>Landscaping:</u><br>Minimum 20% of site area.                                                | Proposal does not<br>Comply -<br>See discussion below |
| <u>Car Parking</u><br>To comply with provisions of PS2                                          | Proposal Complies                                     |
| <u>Services</u><br>Connection to - water, sewerage, electricity                                 | Proposal Complies                                     |

#### Height

The Hunter REP states that the definition of a ‘building’

*“does not include an aerial, chimney stack, mast, pole, receiving tower, silo, transmission tower, utility installation, ventilator or any other thing, or a building of a class or description exempted by the Minister from the provisions of this plan by notice published in the Gazette.”*

The highest component of the development that is classed as a building is the RAP building, which is 9m high and therefore complies with the 15m building height limit. The stack, batch tower, and hot product storage bins all exceed 15m in height but are exempt from the 15m height limit as per the above definition.

#### Landscaping

The Port Stephens DCP states that 20% of the site is to be landscaped. However, Port Stephens council also acknowledge that the DCP is a flexible document and non-compliances with the DCP are acceptable, provided there is adequate justification. This proposed development will feature 14% and although this is less than the quantity stipulated in the DCP, this landscape will be of high quality. The proposed landscaping will incorporate native trees and reeds which are suited to the marshy nature of the site and are tolerant of higher than normal salt loads (enabling first flush water to be used for irrigation).

The DCP also stipulates the following areas are to be landscaped:-

- a) the front building line setback*
- b) the side and rear setbacks if visible from a public place*
- c) the perimeter of open storage areas to be landscaped as necessary to provide screening from public view*
- d) car parking areas to be landscaped to provide shade and to soften the visual impact of parking facilities*

The proposed landscaping complies with the above points as applicable.

#### **6.1.7 Protection of the Environment Operations Act 1997**

Schedule 1 of this instrument lists all EPA-licensed activities. The proposed asphalt plants meets the criteria as :-

***Bitumen pre-mix or hot-mix industries*** where crushed or ground rock is mixed with bituminous or asphaltic materials and that have an intended production capacity of more than 150 tonnes per day or 30,000 tonnes per year. This activity does not include works of a temporary nature exclusively providing product for a construction site and located on or adjacent to that site for a period of less than 12 months

Therefore the proposed asphalt plant will require an Environmental Protection License.

## **6.2 Energy**

### **6.2.1 Energy Issues**

The energy requirements for the manufacture of bitumen within the proposed plant are as follows:-

- Heating of the aggregate in the dryer
  - o The aggregates are heated in the dryer by a burner which has been designed to use gas.
- Heating of the bitumen and heating of the hot storage bins
  - o The energy source for this will be electricity.
- Fuel Energy
  - o The front-end loader used to load RAP to the hopper and also used to clean up and will be fuelled by diesel
  - o Delivery trucks using diesel
- Electrical Energy
  - o All other equipment on site will be operated by electrical energy. This is a comparatively small component of the total energy use of the plant.

### **6.2.2 Energy Efficiency**

There are many features of the proposed plant which will maximise energy efficiency. These include:-

- The plant has five hot aggregate bins and a by-pass bin with a total capacity of approximately 100t. These volumes are over double the usual capacity for a plant this size. This added capacity allows the plant to accommodate longer delays in receipt truck arrival without the need to stop the process. In allowing for greater continuity of operations of the plant, the energy efficiency is optimised.
- The asphalt will be transported to the hot storage bins via a 2.5t skip as opposed to a conveyor, to minimise heat loss.
- The truck circulation has been planned to avoid wasteful queuing. The plant features an oversized pugmill and can therefore load quickly and

minimise delays, which in turn maximises truck fuel economy per tonne of delivered product.

- Unlike many older plants, this plant will feature a variable speed drive on the fan, allowing the fan speed (and thus air flow) to be adjusted to suit, with no energy inefficient baffling required.
- The dryer, bitumen tanks and pipework, hot aggregate bins and hot asphalt storage bins are all insulated to minimise heat loss. Additionally, the bitumen pumps are immersed to save heat.
- A further energy advantage of this plant over other plants will be the reduced on-site handling of aggregates. In comparable local asphalt plants, cold feed aggregates are stored in open storage bins and therefore a front-end loader is required to transfer the aggregates to the process. In this plant, the cold feed aggregates are stored in overhead and covered storage bins and fed into the process, via feeders, onto a conveyor, hence avoiding the use of a front-end loader. Covering the aggregates has the added advantage of keeping them dryer and thus requiring less energy to dry them.

A broader energy benefit to the community due to the construction of this plant is that as a modern plant featuring the most up-to-date technology (as outlined above), it is more energy efficient than older plants. The plant has been designed to use less energy and therefore realise an overall saving in energy to produce asphalt required by the existing market.

### **6.2.3 Recycled Asphaltic Product (RAP)**

A significant environmental feature of this plant in enhancing its environmental sustainability is the ability to utilise RAP. While this does not diminish the energy levels used on site, it reduces the energy usage in the total production by reducing the requirement for raw aggregates and bitumen and also utilises and otherwise waste product.

The RAP is to be stored in an enclosed building as oppose to an open storage bin. This will minimise the moisture absorbed during storage and thus significantly reduce the energy required to dry the RAP.

## **6.3 Air Quality**

A detailed air quality study has been undertaken by Holmes Air Sciences. The recommendations contained in that report have been incorporated into the design of the plant. The specific issues are:-

### **6.3.1 Dust**

The report by Holmes Air Sciences identified the main emissions from the plant are likely to be particulate matter with potential sources as listed below:-

- unloading of aggregate upon delivery to site;
- movement of trucks when entering and leaving the site;
- fine particles from exhausts of diesel trucks; and
- from the plant exhaust stack

A dispersion modelling exercise was carried out for the assessing of impacts of dust. Predictions were made using a 5km x 5km grid with 100m spacing of receptors and the site in the approximate centre. Additional receptors were also positioned at the locations of nearby residences as required. Predictions were made for both 24 hour and annual average concentrations for dust, and annual average dust deposition rates. As the plant may operate for up to 24 hours per day in extreme circumstances, no consideration has been made for variations in emissions by hour of day. The calculated estimated dust emissions at the proposed plant are tabulated below:-

| ESTIMATED DUST EMISSIONS AT THE PROPOSED ASPHALT PLANT                                                                                                              |                           |                      |               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------|---------------|
| Operation / Activity                                                                                                                                                |                           | Emission rate (kg/y) |               |
|                                                                                                                                                                     |                           | Average day          | Busy day**    |
| Trucks hauling raw materials on-site                                                                                                                                |                           | 938                  | 2,344         |
| Conveying aggregate to hopper                                                                                                                                       |                           | 164                  | 362           |
| Trucks hauling product off-site                                                                                                                                     |                           | 1,250                | 3,125         |
|                                                                                                                                                                     |                           |                      |               |
| Stack parameters                                                                                                                                                    |                           |                      |               |
| Stack height (m)                                                                                                                                                    |                           | 14.75m               |               |
| Stack tip diameter (m)                                                                                                                                              |                           | 1.44m                |               |
| Exit velocity (m/s)                                                                                                                                                 |                           | 11.6 m/s             |               |
| Exit temperature (K)                                                                                                                                                |                           | 413 K                |               |
| Emission rate                                                                                                                                                       |                           |                      |               |
| Pollutant                                                                                                                                                           | Emission factor<br>(kg/t) | Emission rate g/s    |               |
|                                                                                                                                                                     |                           | Typical busy day     | Maximum day** |
| TSP emission rate<br>(g/s)                                                                                                                                          | 2.15E-02                  | 0.12                 | 0.37          |
| ** Obviously, emissions for the busy day scenario will not prevail for a whole year, but the values are provided in kg/y for comparison to those for an average day |                           |                      |               |

The dispersion modelling found that *all* predicted concentrations were significantly below the relevant impact assessment criteria as can be seen in the table on the following page:-

| Predicted ground-level particulate matter concentrations at receptors |                                          |                      |                             |                                              |
|-----------------------------------------------------------------------|------------------------------------------|----------------------|-----------------------------|----------------------------------------------|
|                                                                       | PM <sub>10</sub><br>(µg/m <sup>3</sup> ) |                      | TSP<br>(µg/m <sup>3</sup> ) | Dust deposition<br>(g/m <sup>2</sup> /month) |
| Averaging period                                                      | 24-hours                                 | Annual               | Annual                      | Annual                                       |
| Assessment criteria                                                   | 50 µg/m <sup>3</sup>                     | 30 µg/m <sup>3</sup> | 90 µg/m <sup>3</sup>        | 2 g/m <sup>2</sup> /month                    |
| Residence ID                                                          | Typical busy day                         |                      |                             |                                              |
| 1                                                                     | 0.7                                      | 0.2                  | 0.3                         | 0.02                                         |
| 2                                                                     | 0.6                                      | 0.1                  | 0.2                         | 0.02                                         |
| 3                                                                     | 0.3                                      | 0.0                  | 0.1                         | 0.01                                         |
| 4                                                                     | 0.4                                      | 0.0                  | 0.0                         | 0.02                                         |
| 5                                                                     | 0.3                                      | 0.0                  | 0.0                         | 0.01                                         |
| Residence ID                                                          | Maximum day                              |                      |                             |                                              |
| 1                                                                     | 5.3                                      | 1.0                  | 1.32                        | 0.05                                         |
| 2                                                                     | 4.4                                      | 0.7                  | 0.92                        | 0.04                                         |
| 3                                                                     | 2.3                                      | 0.3                  | 0.30                        | 0.01                                         |
| 4                                                                     | 3.9                                      | 0.4                  | 0.47                        | 0.05                                         |
| 5                                                                     | 2.0                                      | 0.1                  | 0.00                        | 0.00                                         |

Note:- PM<sub>10</sub> refers to particulate matter less than 10µm in diameter

TSP refers to total suspended particulates

The NSW EPA 24-hour goal for particulate concentrations is 50µg/m<sup>3</sup>. With the worst case predicted concentrations at the sensitive receptors with the most adverse meteorological conditions being in the order of 6µg/m<sup>3</sup>, the background levels would need to be above 45 µg/m<sup>3</sup>. This is highly unlikely given the monitored existing PM<sub>10</sub> concentrations (see Section 5 of the air quality report).

### 6.3.2 Odour

Hot mix bitumen has a readily identifiable odour.

The potential impacts of the emissions from the proposed plant on the surrounding area were assessed using an advanced gaussian dispersion model (AUSPLUME) which was developed on behalf of the Victorian EPA. Predictions were made using a 5km x 5km grid with 100m spacing of receptors and the site in the approximate centre. Additional receptors were also positioned at the locations of nearby residences as required.

Table 15 in the air quality report outlines the predicted ground level concentrations at residential receptors. The three odorous pollutants identified (acetaldehyde, xylene and toluene) are all significantly below the assessment criteria thresholds (as outlined

by the National Pollutant Inventory). The odorous pollutant closest to its threshold is acetaldehyde, with a predicted ground level concentration during maximum production at the most sensitive residential receptor of  $7.6E^{-6}$  mg/m<sup>2</sup>. This is less the 0.02% of the threshold (0.042mg/m<sup>2</sup>) and it is therefore evident that odour from the asphalt plant will have negligible impact upon the surrounding residents.

### **6.3.3 Greenhouse emissions**

An assessment of greenhouse gas emissions is also included in Holmes Air Science's air quality report. It provides a comprehensive assessment of the project's predicted greenhouse gas emissions in accordance with the Department of Environment and Conservations requirements. The emissions include direct, indirect and significant up/down stream emissions associated with the project and have been estimated using the Australian Greenhouse Office (AGO) workbook.

The annual NSW greenhouse emissions for 2005 were 158.2 Mt. On an annual basis, the estimated greenhouse emissions for this proposal are 6,996t, which represents less than 0.005% of the total NSW greenhouse gas emissions.

The proposed plant has many features that can be considered 'best practice' as far as minimising emissions. These have been outlined in the energy component of Section 6 of this report, but are relevant in this section too.

The 'best practice' features include:-

- The plant has five hot aggregate bins and a by-pass bin with a total capacity of approximately 100t. These volumes are over double the usual capacity for a plant this size. This added capacity allows the plant to accommodate longer delays in receival truck arrival without the need to stop the process. In allowing for greater continuity of operations of the plant, the energy require is minimised.
- The asphalt will be transported to the hot storage bins via a 2.5t skip as opposed to a conveyor, to minimise energy required for heating.
- The truck circulation has been planned to avoid wasteful queuing. The plant features an oversized pugmill and can therefore load quickly and minimise delays, which inturn maximises truck fuel economy per tonne of delivered product.

- Ordinarily, the exhaust system would have a damper system fan that runs at maximum speed constantly and then baffles to reduce the air flow. This method is wasteful of energy. This plant will feature a variable speed drive on the fan, allowing the fan speed (and thus air flow) to be adjusted to suit, with no energy inefficient baffling required. As such less energy is required to exhaust the gas.
- The dryer, bitumen tanks and pipework, hot aggregate bins and hot asphalt storage bins are all insulated to minimise heat loss. Additionally, the bitumen pumps are immersed to save heat.

A further ‘best practice’ feature of this plant will be the reduced on-site handling of aggregates. In a conventional asphalt plant, cold feed aggregates are stored in open storage bins and therefore a front-end loader is required to transfer the aggregates to the process. In this plant, the cold feed aggregates are stored in overhead storage bins and fed into the process, via feeders, onto a conveyor, hence avoiding the use of a front-end loader and the associated emissions. This also stores the aggregates in a dryer state and therefore less energy is used to heat and dry the aggregates during the process.

Finally, this plant is located to reduce travel times to aggregate sources and markets to the north, resulting in a reduction in transport fuel usage.

#### **6.3.4 Controls and Safeguards**

The proposed site is located within an industrial area, with nearby residences being possible sensitive receivers. As such there is a requirement to control emissions using best practicable means. The assessment analysis has assumed that these have been implemented. They include the following:-

- all roadway surfaces are sealed and will be kept free of dust producing material by sweeping;
- aggregate is unloaded from the truck directly into a below ground hopper at a controlled rate thus eliminating dust emissions from “dumping”
- a covered conveyor will reclaim the aggregate immediately so there is no on ground stockpiling of this material;

- Aggregates are stored in fully enclosed and covered overhead storage bins
- RAP is stored in a building and conveyed using a covered conveyor.
- the exhaust from the process heater/dryer is cleaned by a fabric filter baghouse and is vented to the atmosphere via a purpose designed stack
- Fuming emissions will be minimised by the use of automatic temperature control storage tanks
- Activated carbon filters are used on the vents to the bitumen storage tanks
- The exhaust fan is a variable speed drive thus dust pick up in the heater dryer drum.
- The lime silo is fitted with a fabric filter for venting to minimise lime particulate emission.

### **6.3.5 Summary of air quality impact**

The report has assessed the off-site impacts due to the proposed asphalt plant at Tomago. It has been predicted that there will be no off-site dust impacts due to operations on either a typical or busy day at the site. Similarly, in regard to odour, the analysis has shown that all predicted concentrations are significantly below the impact assessment criteria.

As the predicted levels of dust and odour are significantly under the relevant thresholds, there will be no significant cumulative impact.

The greenhouse assessment found that the proposed annual carbon emissions for the plant are less than 1/20000<sup>th</sup> of the total NSW greenhouse emissions for 2005. The myriad 'best practice' features of this plant contribute to minimising the possible emissions.

The proponents believe that all reasonable measures have been taken to reduce emissions to ensure that the plant when built will represent best practice for the industry.

## **6.4 Water**

### **6.4.1 Overview**

Run-off from this site will be conveyed to the open earth drain to the west of the site. This drain runs south, through a culvert under Tomago Road and then continues south where it meets marshland and ultimately drains into the Hunter River

### **6.4.2 Potential sources of pollution**

The potential sources of pollution that could be potentially conveyed with run-off from this site are as follows:-

- dust particles from fall out;
- dust and fine aggregate spilled during truck dumping operations
- spillage during unloading of the hydrocarbon products
- spillage of RAP during delivery operations and transfer from storage to crusher
- spillage of product during loading into trucks
- run-off from trucks during soaping operations
- loss of hydrocarbons from storage failures or pipework failure
- nutrients, largely from landscaped areas.

### **6.4.3 Characteristics of the plant designed to minimise contamination of water run-off**

There are a number of important characteristics of this plant that will maintain it as a clean plant and minimise the risk of contamination of stormwater run-off by either particulate contamination or hydrocarbon contamination.

The risk of particulate contamination of stormwater run-off from this site is far less than many other asphalt plants due to the following:-

- storage of cold feed aggregates in above ground storage bins
- delivery trucks for cold feed aggregates discharge directly into a receival hopper without any external storage of aggregates. The delivery speed is limited to the speed of the reclaim conveyor.
- the cold feed aggregates are transferred from the truck dump hopper into the above ground storage bins by covered conveyors

- the aggregates are transferred from the above ground storage bins into the dryer via a covered conveyor
- the feeders from the underside of the overhead bins onto the discharge conveyor are within an enclosed area under the over head bins
- the dryer is exhausted to a modern bag-house
- the fines discharge fro the bag-house is returned to the process as fine filler for the asphalt.

The risk of contamination by hydrocarbons is very low, due to the use of the modern plant and equipment to receive and convey bitumen throughout the process and the use of modern, efficient transport of product from the mixer to the aboveground hot storage bins and discharge from those hot storage bins directly into trucks.

#### **6.4.4 Stormwater management system**

With each of the above potential sources of contamination, and type of contaminants in mind, the site has been divided into two distinct catchment areas as follows:-

Catchment 1      “Dirty” area, which could potentially contain particulate matter.

Catchment 2      All other areas and building roofs that are designated clean areas.

Catchment 1 will be directed overland to a first flush system designed to accommodate the first flush of a storm.

Whilst the clean areas could potentially contain particulate matter introduced by atmospheric fall-out, and potentially small quantities of nutrients from landscaped areas, these are considered to be normal levels of run-off from any urban environment and can be accommodated in the natural downstream environment without any need for further treatment.

A separate catchment area for hydrocarbons is not required as outlined in Section 4.2.5.

EPA Guidelines for first flush are 15mm depth over the dirty areas. The first flush tank on this site will be designed for a total capacity of 15mm x the catchment area

(approximately 3350m<sup>2</sup>), with an additional 30% of the capacity of the tank retained as a settlement zone.

#### **6.4.5 Site water management system**

This first flush tank will contain a settling zone and sediment storage zone. The sediment storage zone will be 30% of the volume of the first flush tank, and this component of the collected run-off will be used for washdown of dirty areas, and irrigation to landscaping where possible. The rate of build-up of sediment in this zone of the tank will be monitored and a plan developed for disposal of settled sediment planned and implemented. The sediment build up in the tank will be disposed of to landfill by appropriately qualified waste disposal contractors and the disposal of the material will be undertaken in accordance with statutory requirements for this type of material.

The truck soaping area is contained within Catchment area 1. This is a concrete pad where trucks park to have the inside of the trucks lightly sprayed with small quantities of a soap which is an organic product, completely soluble in water. The purpose of this spraying is to minimise adhesion of asphalt to the inside surfaces of the truck. As there are only small quantities of soap sprayed onto the inside of the trucks, it is expected that there will be no, or very minimal overflow of this product onto the soaping platform area. Run-off from this soaping platform area will discharge into Catchment area 1 first flush tank. The amount of soap will be sufficiently small to be adequately diluted into the sediment storage zone of the tank, and any affect of the soap will be dissipated by its action as a coagulant to small suspended particles.

The first flush tank will be emptied after visual inspection of the quality of the water to confirm it is free from hydrocarbon contamination and turbidity. The upper 70% of the first flush tank will be pumped into the stormwater system via a floating inlet submersible pump. If the water is turbid, it will be treated with flocculants such as gypsum, to accelerate the settlement of sediment. In the unlikely event that it contains hydrocarbons, it will be treated by a contract waste disposal company

#### **6.4.6 Ground water issues**

It is considered that there will be minimal penetration of water from this site into the natural ground water and, with the containment of surface run-off from impervious areas through a first flush tank into the Council stormwater drainage system, there is no significant risk of contamination of ground water.

#### **6.4.7 Water Supply**

Asphalt plants are not significant users of water. The addition of water to the raw materials for asphalt is considered environmentally undesirable, as it increases the energy requirements of the process.

Potential sources of water usage on the site are as follows:-

- (1) Sprays for dust suppression at truck dump station.
- (2) Washdown of dirty areas.
- (3) Irrigation of landscaped areas.
- (4) Water supply to office and amenities.

##### Sprays for dust suppression

Although it was not identified as a requirement in the dust emissions study, there will be a spray system set up for dust suppression in the receival hopper and small quantities of water will be utilised by these sprays, which will activate whenever trucks are unloading fine products, or products containing fines. The water used for these sprays will be reticulated from the upper layer of the sediment zone of the first flush tank for Catchment 1.

It is anticipated that there will be rarely any requirement for additional water for this purpose from the town water supply.

##### Washdown of dirty areas

The preferred method of cleaning of the site will be dry cleaning, however there will be provision for washdown of the dirty areas via a supply pump from the upper layer of the sediment zone of the first flush tank for Catchment 1. It is anticipated that this type of washdown will occur on a needs basis, and the objective will be to remove the finer particles that cannot be removed by dry cleaning.

It is anticipated there will rarely be any requirement for additional water for this purpose from town water.

#### Irrigation of landscaped areas

Small quantities of water will be pumped from upper layers of the the sediment zone of first flush tank 1 to the irrigation system for the landscaping. When first flush water is available this irrigation system will operate for a maximum of one hour per day. During drought periods, and possibly during landscape establishment, watering may be undertaken from town water supply using hand held hoses.

#### Water supply to office and amenities

Normal demands on the town water supply will be serviced to the office and amenities building, and this will be the predominant source of demand on the town water supply.

### **6.4.8 Conclusion**

It is considered that the stormwater management system that will be implemented as part of this proposal, in conjunction with the natural advantages of the process used on this plant, will result in the quality of stormwater management that will not significantly impact on the surrounding properties or on the downstream catchment. We can envisage no stormwater related issues that should affect approval of this development.

### ***6.5 Transport and Traffic***

A detailed traffic impact study has been undertaken and is contained in Appendix F. The outcome of the transport and traffic study indicates that the plant is ideally suited to take advantage of the efficient arterial road system that will ensure that the product is transported to and from the plant with minimal impact on the surrounding areas, particularly residential areas.

### ***6.6 Social and Economic***

The proposed site is immediately surrounded by industrial usage. There are seven residences within a 700m radius of the proposed site and also Tomago Village Van Park approximately 400m to the south.

The site location in 'Hunter Industrial Park' will ensure that the surrounding lots are also used for industry and therefore the additional social impact an asphalt plant would make to this area is minimal.

For this development, the extent of community consultation considered necessary was to meet with all proximate residents (including the van park manager) and fully inform them of the development. This has been done. The scope and scale of the development was explained to the residents and there were no objections to the development raised by any of the residents. Any query regarding the impact of the development raised by a resident was answered to the satisfaction of the resident concerned and has been addressed in this document.

It is considered that this development proposal is ideally located to minimise social impact and to provide a positive improvement to the social environment by providing a modern asphalt plant in an area that will minimise transport times to markets to the north. It also enables transport routes to and from the plant along existing main arterial routes, predominately away from residential areas.

The economic impact of the proposal will provide benefits to the local community by the provision of employment and production, with reduced travel times to markets to the north.

This plant also provides substantial economic benefits to the community by the re-use of RAP as replacement feedstock for the production of asphalt. The benefits of this are reduced quantities of RAP going to landfill, and the environmental advantages of recycling product to replace materials that would otherwise need to be imported to the plant from primary sources.

## **6.7 Noise**

A detailed Noise Impact Statement has been prepared by Hunter Acoustics, and is contained in Appendix G. The issues considered in this study are as follows:-

The existing acoustic environment was surveyed over the period from 23 January 2006 to 31 January 2006.

Noise levels have been calculated based on information from two existing plants – one in Rutherford, New South Wales (a relatively old plant), and the other in Mowbray, Tasmania, which is similar in many respects to the intended Tomago Plant.

Noise sources for the proposed plant were identified as being from the following:-

- Main burner
- Exhaust Fan
- Stack
- Vibrating Screen
- Ancillary Equipment – conveyors, motors etc
- Trucks - delivering and collecting product
- Front-end loader

Section 4.2 of the report outlines the site meteorological conditions anticipated. In particular, the likelihood of noise enhancing wind and temperature inversion conditions.

The report stated that:-

- the likelihood of temperature inversions in the area is less than 30% and therefore the occurrence of inversions is not considered significant.
- the area is not subject to drainage flows and distances between source and receivers are less than 1000m, which during inversion conditions would only increase noise levels between 1dB and 1.5dB, which is also not considered significant.
- the wind roses from relevant weather stations show that winds in the area do not occur in any direction for more than 30% of the time, and so noise enhancing wind gradients do not need to be considered.

Therefore, the noise predictions made for the proposed operations were conducted for neutral atmospheric conditions only. The results are set out in the report contained in Appendix G.

The objective of the investigation was to minimise noise impact to the residences identified in the area, and other surrounding industrial properties

The study found that the proposed plant can comply with the requirements of the NSW Industrial Noise Policy. The only noise that becomes significant at nearby residences is the exhaust fan. It should be noted that it is unlikely that actual fan sound levels will be as large as modelled. This is due to the purchase of a fan which

features variable speed drives that automatically reduce operating speeds, as required, and, consequently, noise levels.

Should the noise from the fan be as high as was used in the model, the fan case can readily be treated by the construction of a noise enclosure or via the application of surface damping treatments.

It is the Acoustic consultant's view that an appropriate noise assessment of the plant be incorporated as part of the development of the plant to ensure that specific plant items that have the potential to create noise do not cause offensive or intrusive noise at nearby sensitive receivers.

The report found that operation of the proposed asphalt plant will generally meet the noise criteria for daytime, evening and night time operations and is unlikely to become a source of offensive or intrusive noise. In the event that noise treatments are required, they are readily available and can be implemented without loss of production and without compromising the plant.

## **6.8 Health**

The plant is a modern, state-of-the-art asphalt plant, incorporating all of the most up-to-date materials handling and emission control systems.

Potential health related issues associated with an asphalt plant of this type are as follows:-

- health risks associated with changes in air quality
- health risks associated with changes in water quality
- road safety related issues.

All of the above are addressed in other sections of this report. It is considered that this plant will not significantly increase the health risks for occupants and users of the surrounding areas, and the specialist studies associated with each of the above supports this view.

## **6.9 Visual Impact**

### **6.9.1 Existing Environment**

The proposed site is part of the new “Hunter Industrial Park” subdivision at Tomago and is currently disturbed land that has been seeded with grasses to minimise erosion. This site and the surrounding area are zoned ‘Industrial – General’ and as such, all immediately neighbouring properties, existing and proposed, are for industrial usage. Consequently, an asphalt plant will not be conspicuous with the diversity of industrial uses that are likely to occur in the subdivision.

### **6.9.2 Lighting**

As the plant is designed to enable 24-hour operation as required, it will be fitted with sufficient external lighting to enable safe operation of the plant during night shifts. These lights will be designed to minimise spillage onto the property 300m to the west. It is not considered that the lights will have a significant impact on any of the other surrounding property owners, as all of these sites are industrial (or zoned industrial for those yet to be developed).

### **6.9.3 Other measures to reduce visual impact**

The colour scheme of the plant will be designed to minimise impact on the streetscape, avoiding bright and obtrusive colours.

As discussed in Section 6.1.6, quality landscaping along the Kennington Drive frontage will be employed to compensate for the fact that 14% of the site is landscaped rather than the 20% stipulated by Port Stephens Council, and also to minimise the visual impact of the plant from Kennington Drive.

### **6.9.4 Conclusion**

It is considered that the visual impact of this plant will be consistent with the intentions of an industrial subdivision, with the plant designed to minimise its visual impact, and minimise its affect on the streetscape.

## **6.10 Soil**

According to the Acid Sulphate Soils Planning Maps, the proposed location is classified as ‘class 3 acid sulphate soil’. Therefore according to Port Stephens LEP any:-

- Works more than 1 metre below the natural ground surface*
- Works likely to lower the watertable to a depth of more than 1 metre below the natural ground surface*

will require the preparation and submission of an Acid Sulphate Soil Assessment and Management Plan.

As plant footings and the underground LPG tank will require works more than 1m below the natural ground surface, a Acid Sulphate Soil Assessment and Management Plan was commissioned. The report was prepared by RCA Australia Pty Ltd and is located in Appendix K.

The report stated that Acid Sulphate Soil Management Advisory Committee (ASSMAC) guidelines indicate potential acid sulphate soil conditions are present where the pH of soil in peroxide is less than 3 and/or the pH change during the test is greater than 1. The screening tests indicated that none of the samples tested had a pH in water of less than 4 and, as such, the soils would not be classified as actual ASS. However, based on the ASSMAC guidelines and the results of the screening tests, there was an indication of potential for acid forming conditions upon oxidation for all samples tested. As a result of the preliminary screening test results, further analysis was undertaken which produced results that exceeded ASSMAC action criteria, and therefore required the preparation of a management plan.

The management plan is made up four measures:-

- Prevention - the prevention of oxidation of acid sulphate soils, by minimising the excavation and disturbance of acid sulphate soils where possible
- Neutralisation – the neutralisation of disturbed acid sulphate soils by the addition of lime. This involves:-
  - o Placing or reworking excavated material to form layers of maximum 300mm thickness
  - o Uniform spreading of lime (at the rate noted in the plan)
  - o Thorough and uniform mixing of the soil and lime using a rotary hoe or similar
  - o Monitoring to confirm neutralisation.

The treated excavated soils may be re-used and the exposed face of excavated surfaces should also be treated with lime.

- Monitoring – to confirm the lime treatment has neutralised the acid sulphate soils. This includes monitoring of soil pH in exposed excavation faces and treatment areas during construction works. The monitoring regime will also include monitoring of surface water pH both upstream and downstream from the site during construction. The monitoring regime is outlined in further detail in Section 4.5 of the Acid Sulphate Soil Assessment and Management Plan.
- Contingency – if the monitoring indicates that soil acidity has not reached the required standard, then the material must be reworked and additional lime treatment carried out until it is verified that the soil meets the required standard. In the event that pH measurement of exposed soils in excavations does not meet required levels, lime shall be spread over the affected area and the pH levels further monitored.

In conclusion, potentially acid sulphate soils were found onsite, but can be managed as outlined in the Acid Sulphate Soil Assessment and Management Plan.

## ***6.11 Flora and Fauna***

### **6.11.1 Threatened Species and Habitats**

A threatened species assessment was undertaken by Ecotone Ecological Consultants and the full report is located in Appendix L.

The methodology of the assessment involved an initial literature review and background study. Then a field survey, which involved mapping of the vegetation communities and fauna existing on the site. In addition, nocturnal spotlighting, call playback and ultrasonic bat call inspection were also carried out.

The threatened species assessment found that no threatened species or endangered ecological communities were identified on the site and that it is considered unlikely any threatened species previously recorded in the locality would occur in the study area. The report states that the proposed development is considered unlikely to result in adverse effects on the overall biodiversity of the area due to the disturbed nature of the subject site and the relatively small area of land involved.

The report does provide the following recommendations to ameliorate the impacts of the development and to improve the quality of the existing vegetation to be retained outside the development area:-

- Remove any Lantana, Blackberry and other environmental weeds throughout the property
- Locally indigenous tree and shrub species should be used preferentially in any landscaped areas associated with the proposal (landscape designers have been instructed accordingly).

#### **6.11.2 Commonwealth Environment Protection and Biodiversity Conservation Act (1999)**

This Act provides assessment and approvals for:-

- Actions that have significant impact in matters of national environmental significance (NES)
- Actions that have a significant impact on the environment of Commonwealth land
- Actions carried out by the Commonwealth Government

Matters of NES under the ACT are:-

- World heritage properties
- Ramsar wetlands
- Nationally listed threatened species and ecological communities
- Nationally listed migratory species
- Nuclear actions, and
- Commonwealth marine areas

As none of the above are relevant to the proposed site, and the threatened species assessment found no species listed in the EPBC Act are likely to use the subject site, no approvals under the EPBC Act are required.

#### **6.11.3 Conclusion**

The study found that no threatened species were identified on site and deleterious affects upon the overall biodiversity of the area due to the plant are unlikely.

### **6.12 Aboriginal Heritage**

The Statement of Environmental Effects from the subdivision for 'Hunter Industrial Park' states that an Archaeologist and a representative of Worimi Local Aboriginal Land Council surveyed the area in September 2000. Transects were walked across the study area at 10m intervals where possible. Although no items of Aboriginal heritage were discovered, the conclusion reached was that there was some potential for the study area to contain some items of Aboriginal cultural heritage.

As discussed in Section 5.1.1.7, Worimi Local Aboriginal Land Council were consulted during the preparation of this Environmental Assessment and responded that their requirement was that it was 'imperative that WLALC Site Officers are invited to participate in all earth moving activities'.

In conclusion, Aboriginal cultural artefacts are unlikely to be uncovered and the Local Aboriginal Land Council believed the most prudent course of action for WLALC Site Officers to be present during earth moving activities.

### **6.13 Hazards and Risks**

Hazards and risks associated with the plant have been assessed. A preliminary risk screening has been completed in accordance with SEPP 33 – Hazardous and Offensive Development.

A summary of the risk screening for both quantity of substance on site and transportation frequency is presented in the following tables.

### Quantity of Substance

| Substance                  | Dangerous Goods Classification | Quantity on site  | Quantity Threshold | Comment                                        |
|----------------------------|--------------------------------|-------------------|--------------------|------------------------------------------------|
| <b>Bitumen</b>             | Class 9, PG III                | 200,000L          | -                  | Class 9 excluded from risk screening           |
| <b>LPG</b>                 | 2.1                            | 62m <sup>3</sup>  | 64m <sup>3</sup>   | Below threshold                                |
| <b>Toluene</b>             | Class 3, PG II                 | 0.2m <sup>3</sup> | 2m <sup>3</sup>    | Below threshold                                |
| <b>Methylated Spirits</b>  | Class 3, PG II                 | 0.2m <sup>3</sup> | 2m <sup>3</sup>    | Below threshold                                |
| <b>Hot Asphalt (~160C)</b> | -                              | -                 | -                  | Not a dangerous good unless temperature >240C  |
| <b>Lime</b>                | Class 8, PG III                | -                 | -                  | Not a dangerous good unless transported by air |

### Frequency of Substance Transportation

| Substance                  | Dangerous Goods Classification | Transport Frequency | Transport Threshold   | Comment                                        |
|----------------------------|--------------------------------|---------------------|-----------------------|------------------------------------------------|
| <b>Bitumen</b>             | Class 9, PG III                | 5/week<br>170/annum | 60/week<br>1000/annum | Below transport threshold                      |
| <b>LPG</b>                 | 2.1                            | 3/week<br>38/annum  | 30/week<br>500/annum  | Below transport threshold                      |
| <b>Toluene</b>             | Class 3, PG II                 | 8/annum             | 45/week<br>750/annum  | Below transport threshold                      |
| <b>Methylated Spirits</b>  | Class 3, PG II                 | 8/annum             | 45/week<br>750/annum  | Below transport threshold                      |
| <b>Hot Asphalt (~160C)</b> | -                              | -                   | -                     | Not a dangerous good unless temperature >240C  |
| <b>Lime</b>                | Class 8, PG III                | -                   | -                     | Not a dangerous good unless transported by air |

Note: Lime not transported by air for this proposal.

As can be seen, the risk screening found that quantities and classes of hazardous materials that will be encountered on site do not reach the threshold to be classified as '*potentially hazardous*'. The number of vehicle movements transporting hazardous materials was also below the '*potentially hazardous*' threshold. As such, the risk screening found that the proposed plant was not *potentially hazardous* and therefore no *preliminary hazardous analysis* is required.

In conclusion, the proposed development is not hazardous.

The complete preliminary risk screening is located in Appendix J.

## **6.14 Waste Management**

### **6.14.1 Product Waste**

All of the following measures will be incorporated in the Waste Management Plan for the site, and form part of the Environmental Management Plan of the site

#### **6.14.1.1 Recycled Asphaltic Product**

As the process is designed to maximise the recycling capacity, all product waste will be recycled back through the process by the RAP handling system.

#### **6.14.1.2 Filler**

The process will be designed to avoid surplus filler. However, in the unlikely event that there arises a short-term surplus in generated filler, it will be collected by a licensed contractor and recycled as road base or general civil engineering fill. As a unlikely last resort, surplus filler would be disposed of to landfill.

#### **6.14.1.3 Hydrocarbon Solvents**

Small quantities of hydrocarbon solvents will be used for equipment cleaning (estimated 5 litres per month). These solvents will be contained or absorbed on cleaning rags, etc. and disposed of off site by appropriately licensed waste disposal contractors

#### **6.14.1.4 Toluene from the laboratory**

The used toluene, used for cleaning in the laboratory will be stored in sealed containers and collected by contract to a waste disposal contractor, who will dispose of in accordance with statutory requirements.

#### **6.14.1.5 Spillage clean up equipment**

Absorbent equipment and materials used to clean up spillages will be stored in containers for collection by a licensed waste disposal contractor.

#### **6.14.2 Wash Down of Trucks**

There will be no wash down of trucks on this site. When trucks arrive to receive product, they will be sprayed internally with soap. This spraying will be undertaken on the soaping pad. It is anticipated that there will be no, or at worst minimal, product lost from the truck onto the soaping pad, but any product discharged from the truck onto the soaping pad will be collected and conveyed to the first flush collection tank. The soap is an organic release agent which is completely soluble in water.

## **7 Draft Statement of Commitments**

### **General**

1. Development will be carried out generally in accordance with the procedures outlined in the Tropic Asphalt, Tomago Asphalt Plant Environmental Assessment as prepared by Lindsay & Dynan Pty Ltd.
2. The Applicant will notify the Director-General, Council and the DEC of the events listed below. Notification will be in writing and received at least two weeks prior to the particular event.
  - a. Commencement of the construction period. In the event that construction is staged and/or subject to multiple construction certificates, notice will be sent prior to the commencement of each stage under each construction certificate
  - b. Commencement of the operation period.

### **Production**

3. The production capacity of the new asphalt plant will be limited to approximately 150,000 tonnes per annum of finished product. The plant will be capable of producing up to seven days per week and 24 hours per day, if required.

### **Licensing**

4. Prior to commissioning, the Applicant will apply for an Environmental Protection License from the EPA.

### **Noise Management**

5. Reversing alarms or audible warning devices on loaders and other equipment will not exceed 75dB(A) when measured at a distance of 7m, measured directly to the rear of the vehicle.
6. During the design phase and after commissioning, the sound power levels of the plant will be assessed by an appropriately qualified acoustic consultant to ensure that the levels are equal to or lower than those predicted by the acoustic assessment of this project by Hunter Acoustic. In the event that the sound power levels are higher than predicted, then appropriate acoustic treatments will be incorporated.

### **Water Management**

7. First Flush Operation

- a. Monitoring of weather conditions, sediment build-up and testing of water will be undertaken in accordance with the monitoring strategy as outlined in the Water Management Plan as prepared by On-Site Environmental.

**Heritage**

8. A member of Worimi Local Aboriginal Land Council will be invited to be present during any earth moving works, to identify any indigenous artefacts

**Soil**

9. During excavations, excavated soils and exposed soil faces will be treated in accordance with the Acid Sulphate Soil Management Plan as prepared by RCA Australia Pty Ltd.

**Landscape**

10. In order to ensure water from the first flush tank can be used for landscape irrigation, plants tolerant of higher than normal salt loads that can survive in waterlogged conditions shall be incorporated.
11. Remove any Lantana, Blackberry and other environmental weeds throughout the property

**Environmental Management Plan**

12. The Applicant will prepare and submit an Environmental Management Plan at least one month prior to the commissioning of the asphalt plant. The EMP will address the issues, impacts and operation of the asphalt plant and will be prepared in accordance with *Guideline for the Preparation of Environmental Management Plans (DIPNR 2004)*. The EMP will address the environmental issues identified in the Environmental Assessment, as required.

## 8 Compilation of Mitigation Measures

### 8.1 *Environmental Management Plan*

An Environmental Management Plan for the plant will be developed prior to commissioning. The Environmental Management Plan will be designed to ensure that, as much as possible, the environmental management of the process and plant is both integrated and interfaced with the production process.

The Environmental Management Plan will incorporate reference parameters for monitoring and strategies for monitoring the environmental issues relating to the plant to confirm that the environmental objectives of this Environmental Assessment have been met.

Specific issues that will be addressed in the Environmental Management Plan are as follows:-

- 1 Management of the first flush collection system and settlement tanks and associated monitoring.
- 2 Methods for loading and unloading bitumen to minimise risk of spillage and maintenance systems for the maintenance of the hydrocarbon storage areas.
- 3 Operating criteria and methodology for dust suppression system.
- 4 Procedures for clean up of the site.
- 5 Maintenance procedures for the dust extraction system.
- 6 Methodology and frequency of acoustic monitoring.

Specific criteria to be incorporated into Environmental Management Plan:-

- 1 Noise:

Acoustic performance is to be monitored at six weeks, three months, six months and 12 months after commissioning of the plant, and benchmarked against the predictions of the Environmental Assessment.

Any significant deviation from the expected performance is to be referred back to the Acoustic Consultant to determine any remedial action.

2      Water quality:

The first flush tanks contain a sediment zone and a settlement zone. The procedures for management of these tanks are to incorporate the design requirements of the water management system, as set out in this Environmental Assessment.

3      Emissions control:

Procedures are to be incorporated into the Environmental Management Plan for maintenance of the dust extraction system in a manner that will minimise emissions. This will be a low emissions plant, and it is not considered that it will be necessary to undertake any formal emissions monitoring program. However, within 6 weeks of commissioning, a test will be conducted on the stack to measure dust emissions from the baghouse.

4      Contingency plans:

The Environmental Management Plan will define contingency plans to be implemented in the event of failure of any critical elements of the plant or process that could have either environmental or safety implications.

## ***8.2 Integration of Mitigation Strategy into Plant Design***

The process of preparation of this Environmental Assessment has been undertaken in parallel with the design of the plant and, where environmental issues have been identified during the process, the mitigation measures have been, and will be, integrated into the plant and process design.

Some of the specific mitigation measures that have been incorporated into the plant design are as follows:-

- Modern Equipment
  - o ability to utilise significant quantities of Recycled Asphalt Product (RAP)

- o exhaust fan with variable speed drive to minimise noise and energy usage
  - o insulation of dryer, bitumen tanks (and pipework), hot aggregate bins and hot asphalt bins to minimise heat loss and energy usage.
- Large hot aggregate storage bins and oversized pugmill
  - o greater flexibility to accommodate truck delays and minimise energy wasted in starting and stopping the plant
- Layout
  - o the cold aggregate bins and tank farm/bund have been located between the closest sensitive receiver the burner (a significant noise source) in order in minimise the asphalt plant power sound levels at that receiver
- Incorporation of a modern bag filter
  - o collection of fine dust from the dryer/drum mixer
  - o recycling of collected dust into the process
- Enclosed cold feed aggregate storage
  - o elimination of dust emission from open storage
  - o elimination of dust from front end loader handling of aggregates
  - o energy advantage of elimination of front end loader for transfer of aggregates
- First flush settlement tanks
  - o design of first flush to incorporate a settlement zone, and sediment storage zone in excess of normal provisions for asphalt plants
  - o incorporation of skimming weirs in the discharge from the first flush system collecting from the catchment that could possibly contain hydrocarbons.
  - o provision of a flop gate pit prior to connection with the council drainage system to ensure no bitumen can escape the site in the event of a spill
- Modern handling facilities for raw materials
  - Hydrocarbons
    - o sealed discharge from road tankers to storage tanks
    - o all hydrocarbons stored within bunded storage areas

- o bunded area roofed to prevent rainwater ingress and thus negate the need for a pit with an oil separator

#### Aggregates

- o reclaim conveyor operates at 5t/min meaning aggregates will be 'dribble' fed into the receival hopper, as opposed to dumping and thus minimising particulate emissions

#### Fillers

- o lime silo will feature a bag filter to minimise particulate emissions associated with pumping of the lime

- Lighting
  - o use of low spillage lighting in vicinity of residence to south, to minimise impact during night operations
- Pavement
  - o virtually the whole production area to be paved to ensure well controlled stormwater run-off, and eliminate dust and sediment run-off associated with truck movements on unpaved areas
- Sediment and Erosion control during construction
  - o implementation and maintenance of a Sediment and Erosion Control Plan during the construction phase of the project
- Environmental Management Plan
  - o preparation of an Environmental Management Plan
  - o education of staff in effective and efficient implementation
  - o ongoing structured verification of implementation of the Environmental Management Plan
- Fire safety measures
  - o fire safety appliances into the plant design
  - o education of staff in fire safety and the risks associated with an asphalt plant
  - o use of modern control technology, together with early warning systems, to ensure risk of fire is extremely low
- Traffic/truck movements
  - o design of the plant truck movements to ensure a single direction travel, with separation of raw product delivery from finished product delivery

- o siting of plant to take advantage of the transport links from the plant area to surrounding potential markets
- o siting of the plant within an industrial area with very few nearby residents.

### **8.3 Monitoring**

A number of monitoring strategies are to be implemented as part of the Environmental Management Plan, to ensure that the objectives of the Environmental Assessment have been met. Monitoring requirements include:-

#### **8.3.1 Noise**

Acoustic performance is to be monitored at six weeks, three months, six months and 12 months after commissioning of the plant, then at 12 monthly intervals, and benchmarked against the predictions of the Environmental Assessment.

Any significant deviation from the expected performance is to be referred back to the Acoustic Consultant to determine any remedial action.

#### **8.3.2 Water Quality**

Water quality will be monitored as outlined in the stormwater management report. This will involve:-

- monitoring of weather conditions to provide guidance as to how quickly the first flush tank will need to be emptied in order to accommodate predicted precipitation
- monitoring of the first flush tank itself with respect to levels
- water testing of the water contained in the first flush tank

The specific requirements for the monitoring regime will be outline in greater detail in the Environmental Management Plan

#### **8.3.3 Emissions Control**

This is a low emissions plant, and it is not considered that it will be necessary to undertake any formal emissions monitoring program, unless there are issues raised by surrounding landowners or relevant authorities.

## 9 Justification

The proponent currently operates an existing asphalt laying business. The business services federal, state and local government, as well as the private sector, in the supply of maintenance and construction services for roads. The proposed plant has been sized to supply product to that business and is of sufficient size to support growth of that business. Product surplus to the proponents need will be offered to the broader market.

The plant will provide an efficient and competitive supply of asphalt to the Newcastle and Port Stephens area as well as areas to the north, west and south.

The objective, in site selection, was to have a site located geographically to maximise use of major transport links, both for delivery of product and receipt of raw materials, and be in an industrial area as with few existing residences and unlikely to undergo future residential development. The site that was eventually chosen ideally meets all of these criteria.

The objective, in selection of a production process, was to have the most energy efficient process with excellent environmental outcomes, and to maximise the capacity to recycle RAP. The process that was utilised a pugmill mixer and can incorporate up to 30% RAP as feedstock.

Once the process was selected, the plant was then laid out to suit the site. The objectives in the layout of the site were as follows:-

1. Minimise the visual impact from Kennington Drive
2. Minimise noise levels by locating noise generating plant behind non-noise generating plant to buffer noise to sensitive receptors
3. To provide continuity of truck movement and minimise truck queuing and idling time
4. Develop a plant that can utilise quantities of RAP

The selection of the preferred plant arrangement, process and site can be justified as follows:-

- The site that has been chosen is located in a large industrial zoning, within the Tomago Aluminium Smelter buffer zone, and in this context will have negligible impact upon residential areas. There are seven residences within a 700m radius of the site. The closest resident is 300 m to the west of the site. The closest residential cluster is the mobile home park (Tomago Village Van Park) approximately 400m south. The nearest residential subdivision is in Tarro, approximately 3.5km to the west
- There exists no asphalt plant within the Port Stephens Shire. Currently, the closest plant is in the Newcastle local government area. The location of the proposed plant will more conveniently service the demand within Port Stephens Shire.
- Additionally, the close proximity to the Pacific Highway will allow greater access to markets further north, an area currently serviced from Rutherford, Newcastle or Taree.
- The site is located close to sources of aggregate, with quarries at Brandy Hill, Seaham and Paterson.
- The plant is located in an area that is able to provide a suitable labour force, without the need for long travelling times.
- A traffic study confirmed that there is negligible impact to surrounding roads due to the presence of this plant.
- An emissions study confirmed there is negligible impact resulting from plant emissions.
- The plant layout has been positioned to baffle noise and minimise sound power levels at sensitive receivers. An acoustic study found that the proposed plant will be unlikely to become a source of offensive or intrusive noise.
- The stormwater run-off collection system will be designed and constructed to minimise impact on the stormwater catchment.
- The layout allows quality landscaping to be located to minimise the visual impact from Kennington Drive.
- The economic and environmental sustainability of this plant is enhanced by its ability to utilise Recycled Asphaltic Product (RAP) and the determination of the Principal to develop a plant that can utilise RAP was a key objective.

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