



Application for Works Approval

Part V Division 3 of the *Environmental Protection Act 1986*

Works Approval Number W6564/2021/1

Applicant Downer EDI Works Pty Ltd

ACN 008709608

File number DER2021/000352

Premises Albany Asphalt Plant
Lot 2 Rocky Crossing Road
WILLYUNG 6330

Legal description
Part of Lot 6 on Diagram 69555
Certificate of Title Volume 2011 Folio 646
As defined by the coordinates and premises map in Schedule 1 of the issued works approval

Date of report 17/01/2022

Proposed Decision Works approval granted

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1. Decision summary

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation of the Albany Asphalt Plant (premises). As a result of this assessment, works approval W6564/2021/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) has considered and given due regard to its regulatory framework and relevant policy documents which are available at <https://dwer.wa.gov.au/regulatory-documents>.

2.2 Application summary

On 11 June 2021, Downer EDI Works Pty Ltd (the applicant) submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake construction works relating to the replacement of an existing asphalt plant which has reached the end of its operational life, with a new asphalt plant within part of Lot 2 Rocky Crossing Road (premises). The premises is located within an area of the Holcim Albany Quarry and is approximately 7.7 km north-west of the City of Albany.

The premises relates to the categories and assessed production / design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W6564/2021/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in works approval W6564/2021/1.

2.3 Background and premises overview

The applicant currently operates a 40 t/hr asphalt plant on the premises under existing licence L8614/2011/2. The applicant advised the existing asphalt plant, built in 1969, has been in operation at the premises since 2000 but has now reached the end of its service life and therefore requires replacement with a new plant.

A new Benninghoven Master Mix 80 t/hr asphalt plant will be established in place of the existing plant which will be removed. The new plant is proposed to operate predominantly during daylight hours only (nominally from 7am to 7pm) but on occasions subject to client demand is proposed to operate at night. The plant is currently forecast to produce up to 15,000 metric tonnes per annum which equates to approximately 190 hours per year operation based on the plant's design capacity.

The new asphalt plant will include a Reclaimed Asphalt Pavement (RAP) feeder and additive hopper to enable incorporation of RAP and other recycled additives such as Tonerplas (recycled toner/ polymers combined with soft plastics) into the asphalt mix. The applicant advised RAP will be received and stored on the premises to be incorporated into asphalt production but no processing of material into RAP will occur.

The applicant advised other redundant infrastructure including an LPG tank farm, and horizontal bitumen tanks and bund will be removed from the premises. A 30,000 self-bunded and containerised diesel tank and two new vertical, electrically heated, insulated 60 m³ bitumen tanks will be constructed to replace this infrastructure. A new bunded area will be

established for the bitumen tanks and an existing emulsion tank will be moved from its current location into the new bunded area. Existing support infrastructure such as the site office, amenities and ablution blocks will be retained. Improvements to site traffic management will also be made to reduce the need for vehicle reversing on the premises.

Four existing storage bunkers are located on the premises which will be relocated and two new storage bunkers will be established for bulk storage of aggregate feed material and RAP.

Asphalt manufacture using the new Benninghoven Master Mix 80 t/hr asphalt plant will involve the following process.

- Feed (aggregate) is collected from storage bays by a front end loader and fed into five designated receiving hoppers (mineral cold feeders). Raw aggregate materials will be sourced from the adjacent quarry and from other local sources.
- Aggregates are transferred from the mineral cold feeders via individual conveyors onto a main collecting conveyor belt where they are combined and transferred to an 80 t/hr rotary dryer/pugmill mixer.
- A diesel fired burner unit runs the rotary dryer. Material exits the rotary dryer at a desired temperature (between 160 and 240°C) and then enters a twin shaft, counter rotating pugmill mixer.
- In addition to the aggregate, the pugmill mixer receives a continuous flow of bitumen from two bitumen storage tanks via a calibrated bitumen pump and filler from an imported filler silo. Granular additives such as Cellulose Fibre, Tonerplas, Crumb Rubber, or Red Oxide can also be added one at a time to the asphalt mix via a Granular additive feeder/hopper and RAP can be added via a RAP feeder/hopper (RAP is collected from the storage bay by a front end loader and added cold). The pugmill mixer combines all the feed materials which will make up the final asphalt product in a twin shaft counter rotating mixing chamber.
- Finished asphalt product is discharged from the pugmill mixer into a drag slat conveyor (enclosed mechanical chain elevator) which transfers the asphalt to a load out hopper.
- Trucks will park under the load out hopper and receive finished asphalt. Batch software will be used to deliver the desired weight of asphalt into the truck. There will be no asphalt storage on the premises with the product being batch produced to order.
- Emissions from the rotary dryer and pugmill mixer are extracted to a baghouse (with two chambers, a coarse and fine filter) for treatment and are discharged to atmosphere via an exhaust fan and a 12 m high exhaust stack. Particulates collected from the baghouse filters are transferred back into the asphalt mix in the pugmill mixer

A flow chart illustrating the asphalt manufacturing process and emissions treatment is included in Figure 1.

Benninghoven- Master Mix 80 Process Flow

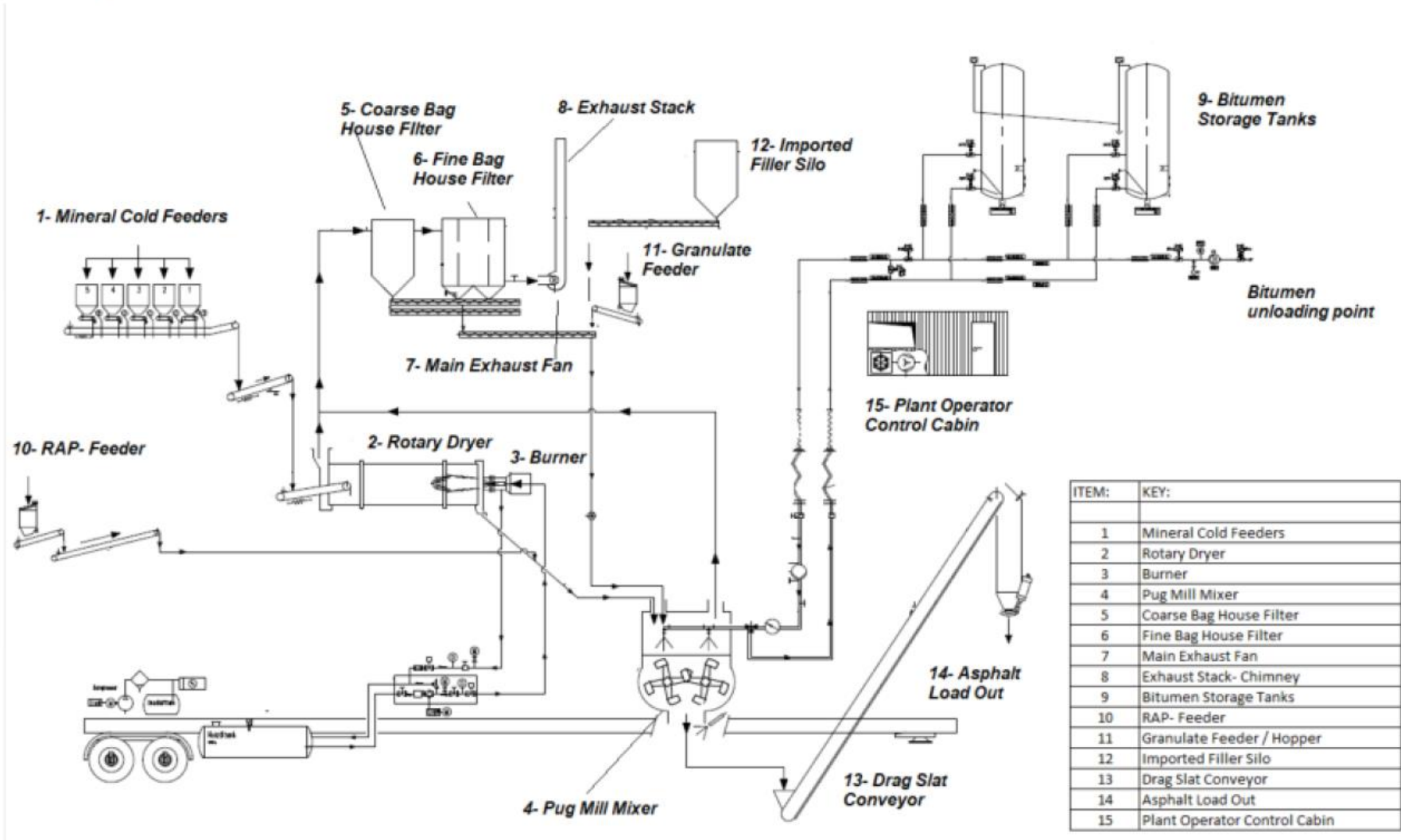


Figure 1 Benninghoven Master Mix 80 asphalt manufacturing process flow

2.4 Air Quality and Odour Impact Assessment

The applicant commissioned Ektimo to undertake an air quality and odour impact assessment to determine the potential impact on air quality and amenity for nearby sensitive receptors of as a result of emissions to air from the asphalt plant (Ektimo 2021).

2.4.1 Air Quality Assessment

Dispersion modelling was undertaken using the AERMOD dispersion model to predict ground level concentrations (GLCs) for pollutants across the model domain. The model scenario comprised a low sulphur diesel fueled asphalt plant producing 15,000 tpa operating at 80 t/hr for approximately 190 hours per year. Emissions were modelled from a 12 m high baghouse stack. The emission source was assumed to operate continuously (24 hours per day, 365 days per year) for comparison with 1-hour and 8-hour criteria, continuously from 7am to 7pm, 365 days per year for comparison with 24-hour criteria, and continuously but scaled to operate 190 hours per year for comparison with the annual criteria.

Emission rates adopted for the modelling were based on the following:

- stack testing results from the baghouse stack of an identical asphalt plant producing a comparable type of asphalt in Lismore, Queensland for combustion gases, particulates and total organic compounds (as asphalt fume);
- an average of three stack tests of a comparable asphalt plant operated on diesel in WA for polycyclic aromatic hydrocarbon (PAH) emissions; and
- derived from Australian US EPA AP-42 Emission Estimation Tables and Australian National Pollutant Inventory emission estimation technique manuals for volatile organic hydrocarbon substances and trace metals.

Model predictions were compared with relevant ambient air quality guideline values (AGVs) taken from the department's Draft *Guideline: Air Emissions* (2019a). The AGVs specified in the Draft Guideline are based on the advice from the WA Department of Health (DoH) and other published guidance or standards including the New South Wales Environmental Protection Authority (EPA) *Approved methods for the modelling and assessment of air pollutants in New South Wales* (EPA 2016) and the National Environment Protection Council (NEPC), *National Environment Protection (Ambient Air Quality) Measure 2016* (Ambient Air NEPM) and *National Environment Protection (Air Toxics) Measure 2011* (Air Toxics NEPM). The Ambient Air NEPM has been amended since the guideline was published therefore AGVs from the updated Ambient Air NEPM 2021 have been applied where appropriate (NO_x and SO₂). A summary of the model results compared with relevant AGVs is included in Table 1.

Table 1: Summary of ambient air quality model results for proposed Albany Asphalt Plant (from Ektimo 2021)

Pollutant	Emission rate (g/min)	Average Period	Conc. Statistic	AGV ¹ (µg/m ³)	Max. GLC modelled at nearest sensitive receptor ² (µg/m ³)	99.9 th percentile modelled at premises boundary ² (µg/m ³)	% AGV
TSP	23	24-hr	Max	82	2.7	NA	3.3%
PM ₁₀	6.9	24-hr	Max	46	0.7		1.5%
		Annual	Ave	23	0.003		0%
PM _{2.5}	4.8	24-hr	Max	23	0.5		2.2%
		Annual	Ave	7	0.002		0%
CO	29	1-hour	Max	30,000	19		0.1%

Pollutant	Emission rate (g/min)	Average Period	Conc. Statistic	AGV ¹ (µg/m ³)	Max. GLC modelled at nearest sensitive receptor ² (µg/m ³)	99.9 th percentile modelled at premises boundary ² (µg/m ³)	% AGV
		8-hour		10,000	9		0.1%
NOX as NO ₂	12	1-hour	Max	150	8		5.3%
		Annual	Ave	28	0.01		0%
SO ₂	0.56	1-hour	Max	262	0.38		0.1%
		24-hr	Max	52	0.06		0.1%
Lead	0.0023	Annual	Ave	0.46	0.000001		0%
Arsenic	0.00073	1-hour	Max	0.09	NA	0.0013	1.4%
		24-hr	Max	0.027		0.0002	0.7%
		Annual	Ave	0.0027		0.000001	0%
Asphalt fume (as 100% of total organic compounds)	4.8	1-hour	Max	9		8.8	97.8%
Benzene	0.27	1-hour	Max	29		0.49	1.7%
		Annual	Ave	9.6		0.0004	0%
Chromium (total) as Cr(III)	0.008	1-hour	Max	9		0.015	0.2%
		24-hr	Max	0.46		0.003	0.7%
Copper	0.0041	1-hour	Max	18		0.008	0%
		24-hr	Max	0.92		0.001	0.1%
Formaldehyde	1.6	1-hour	Max	20		2.9	14.5%
Manganese	0.073	24-hr	Max	0.14		0.002	1.4%
Nickel	0.01	1-hour	Max	0.18		0.018	10%
		24-hr	Max	0.14		0.003	2.1%
		Annual	Ave	0.003		0.00002	0.7%
Total PAH's (as BaP TEQ)	0.000005	Annual	Ave	0.0003		0.00000001	0.0%
Toluene	0.49	24-hr	Max	3770		0.16	0.0%
		Annual	Ave	377		0.0007	0.0%
Xylenes	0.11	24-hr	Max	1080		0.035	0.0%
		Annual	Ave	870		0.0002	0.0%
Zinc	0.028	24-hr	Max	46		0.009	0.0%
Acetaldehyde	0.87	1-hour	Max	42		1.6	3.8%
Acetone	0.56			22,000		1.0	0.0%
Cadmium	0.00029			0.018		0.0005	2.8%
Mercury (as organic)	0.0000049			0.18		0.000009	0.0%

Note 1: Assessment criteria assume standard temperature and pressure of 25°C and 101.3kPa.

Note 2: As per the Draft *Guideline: Air emissions* (DWER 2019), AGVs apply at the nearest sensitive receptor for criteria pollutants and at the premises boundary for principle and individual toxic substances. The nearest sensitive receptor is taken to be the landowner's residence located 150 m south of the premises.

The assessment notes that poor dispersion conditions occur at night time but that the plant is expected to predominantly operate from the hours of 7am to 7pm. During these operational hours winds are predominantly from the west and east.

The department reviewed the applicant's air quality assessment (Ektimo 2021) and concluded that while there were some shortcomings in some elements of the modelling methodology, the assessment was undertaken to an acceptable level to inform the assessment of air quality impact. AGVs were predicted to be readily met (<6%) at all sensitive receptors within the model domain for criteria pollutants. Principle and individual toxic substance AGVs are expected to be met everywhere within the model domain (excluding within the premises boundary). The modelling predicted principle and individual toxic substance concentrations to be predominantly well below AGVs outside the premises boundary (<4%) with the exception of VOCs as asphalt fumes (97.8%), formaldehyde (14.5%) and Nickel (10%). In reviewing the model outcomes the department determined that asphalt fume concentrations are predicted to impact higher ground away from sensitive receptor locations which are generally located at lower elevations than the asphalt plant or further away from the predicted maximum impact location. Giving consideration to the potential impact of asphalt fume at residences, the model results indicate concentrations are predicted to be approximately 30% of the AGV at the nearest receptor (approximately 150 m south of the premises), with concentrations predicted to be less than this at all other receptor locations (residences) within the model domain.

In assessing the model outcomes, the department gave consideration to the cumulative impact of asphalt fume as the emission of most significance from the premises. Taking into consideration the location of the Great Southern Sands asphalt plant approximately 600 m southwest of the premises, the department determined that, due to the distance between the two plants, and no receptors occurring directly between the two premises, the largest cumulative impact contribution from the premises is likely to be no more than 7% of the AGV at a receptor located 1.4 km south-west of the premises (227 Menang Drive). Based on this, the department does not consider there is an increased risk associated with cumulative impact, particularly given each plant is expected to operate for no more than 190 hours per year.

2.4.2 Odour Assessment

The odour assessment conducted by Ektimo 2021 included an odour screening analysis, operational odour analysis, odour source analysis and location review using the methodology and tools detailed in the department's *Guideline: Odour emissions* (DWER 2019b). A dispersion modelling comparative assessment was also undertaken to compare the odour impact of the proposed 80 t/hr asphalt plant with that of the existing 40 t/hr asphalt plant located on the premises. Odour sources identified on the premises include the 12 m high baghouse vent stack (primary odour source), load out of the mixed asphalt from the mixing tower directly into a tray truck (secondary odour source) and venting from the bitumen storage tank head space during loading from a tanker truck (minor odour source). The assessment considered that cumulative odour impacts are unlikely to occur from operation of the premises and nearby Great Southern Sands Asphalt Plant given the low annual production rate of the two premises and the distance between the plants.

As per the *Guideline: Odour emissions*, the department considers comparative odour dispersion modelling assessment, as undertaken by Ektimo 2021, a valid detailed analysis tool for comparison of odour impact between the existing and proposed plant. Odour testing results from the baghouse of the existing asphalt plant (45,000 OUV/sec) were modelled and compared with results from the baghouse stack of an identical asphalt plant producing a comparable type of asphalt in Lismore, Queensland (3,056 OUV/sec). Loadout emissions were based on testing undertaken at a 120t/hr plant, scaled for an 80t/hr plant and assumed to be the same for both plants. The modelling predicted there will be an 80% reduction in the downwind distance from the plant that an odour perception concentration of 1 OU is detectable and it is predicted that the odour concentration at the closest receptor will be <1 OU.

The department reviewed the odour assessment and comparative modelling and determined that odour emissions and the extent of odour impact appear to be significantly reduced in comparison to the existing plant therefore the potential for cumulative odour impact appears to

be significantly lower than for operation of the existing plant. Given there has been no history of odour complaints relating to the existing asphalt plant, and emissions are expected to reduce, the department does not expect odour impacts to result from operation of the new asphalt plant.

2.5 Noise Impact Assessment

The applicant commissioned Assured Environmental to undertake a noise impact assessment to determine the potential impact of noise emissions from the premises and whether operation of the proposed asphalt plant is likely to comply with the assigned noise levels prescribed in the *Environmental Protection (Noise) Regulations 1997* (the Noise Regulations). Acoustic modelling was undertaken using Computer-Aided Noise Abatement (CadnaA) which is based on the CONCAWE algorithm to predict the worst case noise levels received at twelve nearby sensitive receptors. The modelled sound power levels were primarily obtained from an attended noise measurement at Downer's equivalent asphalt plant located in Lismore, Queensland with Assured Environmental's sound power level database being used to source sound power levels for plant which wasn't operational at the time the attended monitoring was undertaken (Assured Environmental 2021).

Two scenarios were modelled to address the intermittent nature of truck movements on the premises. The first scenario excluded truck movements and was assessed against the L_{A10} assigned levels whereas the second scenario included all equipment and trucks with assessment made against the L_{A1} and L_{Amax} (night) assigned levels. The applicant's noise impact assessment concluded, based on modelling outcomes, that during worst case meteorological conditions noise levels will at all residential receptors will comply with the assigned noise levels in the Noise Regulations during all time periods.

A summary of the model predicted noise levels for both scenarios is included in Table 2 for receptors predicted to receive the highest noise levels. Noise levels at all other receptors were predicted to be >15 dB below the assigned noise levels for both scenarios. The assigned noise levels were adjusted to include influencing factors for four receptors located within 450 m of industrial or commercial premises or busy roads.

Table 2: Summary of predicted noise levels at sensitive receptors for proposed Albany Asphalt Plant (from Assured Environmental 2021)

Scenario 1						
Receptor	Predicted outdoor noise level L_{A10} period dB(A)		Applicable assigned noise level L_{A10} period dB(A)			
			Day	Evening	Night	
R1 (361 Rocky Crossing Road)	35		46	41	36	
R2 (359 Rocky Crossing Road)	26		45	40	35	
R3 (310 Rocky Crossing Road)	24		45	40	35	
R7 (439 Rocky Crossing Road)	32		47	42	37	
Scenario 2						
Receptor	Predicted outdoor noise level		Applicable assigned noise level L_{A1} period dB(A)			
	L_{A1} period dB(A)	L_{Amax}	Day	Evening	Night	L_{Amax} (Night)
R1 (361 Rocky Crossing Road)	36	47	55.6	50.6	45.6	55.6
R2 (359 Rocky Crossing Road)	27	45	55.3	50.3	45.3	55.3
R3 (310 Rocky Crossing Road)	23	35	55	50	45	55
R7 (439 Rocky Crossing Road)	31	47	56.5	51.5	46.5	56.5

The department reviewed the applicant's noise impact assessment (Assured Environmental 2021) and noted that while the assessment indicates noise emissions from the premises will comply with the Noise Regulations, the modelling lacks the necessary level of conservatism required to provide sufficient certainty in the model's predictions.

In particular the department noted that the sound power levels used in the assessment appear to be low for some modelled equipment (such as the front end loader) when compared with sound power levels used for other assessments for similar plant. It was however noted that sound power levels were stated to have been based on measurements undertaken at an equivalent plant.

The department noted the assessment did not incorporate a +5 dB penalty for a tonal component. It would generally be expected that noise emissions from an asphalt plant would contain tonal components and for a conservative approach to the assessment the department would expect a +5 dB penalty for a tonal component to be included in the predicted noise levels at the receptors. Addition of a +5dB penalty to the predicted noise levels indicates the night-time noise levels may be exceeded at the closest receptor. The department therefore does not have sufficient certainty that the premises is able to comply with night-time assigned noise levels at the closest receptor.

Additional to the above, the department noted cumulative impact was not considered in the assessment. As there are other activities in the surrounding area which contribute to noise levels at sensitive receptors, cumulative impact must be considered. The department's expectation is that modelling of the premises noise emissions should demonstrate that noise levels are predicted to be at least 5dB below the assigned levels at receptors, for the premises noise emissions not to significantly contribute to a level of noise which exceeds the assigned levels. As the modelling indicates night-time noise levels will be within 1 dB of the assigned levels at the closest residence (R1), noise emissions may significantly contribute to noise at the closest residence during night operations.

Based on its assessment of the Noise Impact Assessment provided with the application (Assured Environmental 2021) the department has concerns the premises may not comply with the Noise Regulations if operated at night. The department discussed these concerns with the applicant who advised they would accept restricted operating hours to exclude night-time periods (7am to 7pm Mon – Sat and 9am-7pm Sundays and public holidays) and a requirement to undertake a noise monitoring program when the plant is commissioned to demonstrate whether the premises will be capable of complying with night-time assigned noise levels.

The department also noted that the noise assessment included a tonal reversing alarm. The Noise Regulations require that noise received at other premises must be free of tonality unless it cannot be reasonably and practically removed. As there are reversing alarms and systems that do not generate tonal noise the department advises the applicant to consider use of non-tonal reversing alarms on the market.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk Assessments* (DWER 2020).

To establish a risk event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this decision report are detailed in Table 3 below. Table 3 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 3: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Fugitive dust	Removal of existing plant and replacement with a new asphalt plant and supporting infrastructure.	Air / windborne pathway	No specific controls proposed
Noise			
Operation			
Fugitive dust	Delivery and storage of raw materials (aggregate, hydrated lime/ imported filler, granular additives, RAP, bitumen and diesel)	Air/windborne pathway	<ul style="list-style-type: none"> Aggregate and RAP will be stored within four existing (to be relocated) and two new concrete three-walled storage bunkers, with stored material kept below the height of the walls. Granular additives will be stored in bulka bags on the premises. Imported filler will be stored in an enclosed silo (silo will have an enclosed connection for filling, be fitted with rotating level indicators which prevent overfilling, and a venting filter with a filter area of 24 m² designed to reduce particulate to less than 20 mg/m³). 10 km/hr speed limit on the premises. Trucks will have covered loads Internal roads and operational areas are sealed (bitumised) and swept as required. A water cart which operates at the adjacent quarry is engaged to wet stockpiles when required (hot/windy conditions).
Noise			<ul style="list-style-type: none"> Traffic management improvements are being undertaken on the premises to minimise the amount of vehicle reversing required. The plant will operate during daylight hours (7am to 7pm Mon – Sat, 9am-7pm Sundays and public holidays) for approximately 190 hours per year. Noise monitoring will be undertaken during commissioning to demonstrate the plant's ability to comply with evening and night-time assigned noise levels.

Emission	Sources	Potential pathways	Proposed controls
Odour (VOCs)			<ul style="list-style-type: none"> A new electrically heated vertical bitumen tank system comprising two 60m³ tanks with 200 mm thick rockwool insulation (standard insulation is 50-100mm) will be installed resulting in reduced emissions compared to the existing horizontal tank system which is heated via a thermal oil heater. Class 320 bitumen will be used. The bitumen has been 'cut' of shorter chain odourous hydrocarbons during production. Bitumen is stored at a temperature of ~165°C. The bitumen storage tank will have a K2 temperature probe monitored in the control room. An alert sounds if it exceeds 180°C and the temperature is adjusted by the operator (or if blue smoke is detected). The bitumen tank headspace breather vents will direct vapours to a water bath to reduce odour/VOCs.
Bitumen, emulsion or diesel (hydrocarbons) from spills		Direct discharge to land.	<ul style="list-style-type: none"> Two 60 m³ vertical bitumen tanks will be established within a newly constructed bund. The existing 8,000 L emulsion tank will be relocated into the newly constructed bund. The bund will be constructed from concrete to conform with AS 1940-2017 and be graded toward an internal sump. The bund slab and walls will not have any penetrations, cast in conduits or items that penetrate. Diesel will be stored in a 30,000 L self-bunded tank that conforms with AS 1940-2017. The inner tank is constructed to AS 1692. The premises operational areas are bitumised.
Fugitive dust	Processing of raw materials (pugmill mixer and rotary dryer) to produce asphalt	Air/windborne pathway	<ul style="list-style-type: none"> Granular additives are added into the pugmill via enclosed auger screws. Hoppers will have four sides with wind shields. A water cart which operates at the adjacent quarry is engaged to wet material in the hoppers when required (hot/windy conditions). All conveyors will have covers on three sides.
Noise			<ul style="list-style-type: none"> The plant will operate during daylight hours (7am to 7pm Mon – Sat, 9am-

Emission	Sources	Potential pathways	Proposed controls
			<p>7pm Sundays and public holidays) for approximately 190 hours per year. Noise monitoring will be undertaken during commissioning to demonstrate the plant's ability to comply with evening and night-time assigned noise levels.</p>
Air emissions (combustion gases, particulates and VOCs)			<ul style="list-style-type: none"> • Exhaust gases from the dryer/pugmill mixer will be directed to a bag house (continuously operated while dryer/mixer is operating) equipped with a coarse knock out box and a fine filter with an effective filter area of 228 m² of Nomex high temperature fabric bags (equipped with a reverse air pulse jet cleaning system). • Collected dust from the baghouse is returned to the pugmill mixer via auger screws from the coarse and fine filter sections. • The baghouse has a design criteria of <20 mg/m³ for particulate emissions. • Baghouse filters will be regularly inspected and replaced when broken or leaking bags are detected. Operations cease if a baghouse fault or malfunction occurs.
Odour			<ul style="list-style-type: none"> • The baghouse exhaust stack will be extended from the default 4.9 m to 12 m above ground level and is expected to have a discharge velocity of ~16 m/s to improve dispersion and dilution. • The baghouse exhaust stack will be fitted with a suitable sampling port to enable emission testing. • Proposed to undertake annual duplicate sampling of odour from the asphalt plant baghouse stack, and duplicate sampling during commissioning. • Fume/vapour from the pugmill mixer is drawn via negative pressure through the dryer burner flame zone to abate VOCs with flue gases then discharged via the baghouse filters. • The burner will be fueled by low sulphur diesel • The burner will be computer controlled to remove temperature spikes which typically occur with manually controlled burner systems and can result in odour emissions. • The temperature of the dried raw material and the mixed asphalt is managed via a K2 temperature probe

Emission	Sources	Potential pathways	Proposed controls
			<p>monitored in the control room. An alert sounds if it exceeds 180°C and the temperature is adjusted by the operator (or if blue smoke is detected).</p> <ul style="list-style-type: none"> • Class 320 bitumen will be used. The bitumen has been 'cut' of shorter chain odourous hydrocarbons during production. • To avoid periods when poor dispersion conditions are more likely to occur, the plant will operate predominantly during daylight hours 7am to 7pm for approximately 190 hours per year. Limited night operation is proposed (subject to demonstrating night-time compliance with the Noise Regulations). • Weekly downwind boundary screening for odour will be undertaken when the plant is in operation. • Complaints will be recorded and investigated
Odour (VOCs)	Dispatch of asphalt (truck loadout from a load out hopper)	Air/windborne pathway	<ul style="list-style-type: none"> • Asphalt is batch processed as required (no asphalt storage on the premises) and loaded directly to trucks via a drag slat conveyor (enclosed mechanical chain elevator) and loadout hopper. • To avoid periods when poor dispersion conditions are more likely to occur, the plant will operate predominantly during daylight hours 7am to 7pm for approximately 190 hours per year. Limited night operation is proposed (subject to demonstrating night-time compliance with the Noise Regulations). • Filled truck trays are tarped before leaving the premises. • No asphalt storage on the premises (batch loaded to trucks upon mixing). • The pugmill mixer is under a slight negative pressure with fumes drawn through the dryer burner flame zone to abate VOCs which reduces fugitive VOCs when asphalt load out occurs.
Asphalt (spillage)		Direct discharge to land.	<ul style="list-style-type: none"> • The premises operational areas are bitumised. • Load out occurs from a designated load-out hopper by the plant operator using batching software to load a desired weight into trucks limiting potential overfilling.
Potentially contaminated	Runoff from premises	Direct discharge to land	<ul style="list-style-type: none"> • Drains on the premises direct stormwater to an existing triple interceptor pit system for treatment prior

Emission	Sources	Potential pathways	Proposed controls
stormwater	operational areas		<p>to discharge.</p> <ul style="list-style-type: none"> The existing licence conditions require six-monthly monitoring of treated water from the triple interceptor and specify a limit of 15 mg/L for stormwater discharged from the triple interceptor to land.

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant's employees, visitors, and contractors from its assessment. Protection of these parties often involves different exposure risks and prevention strategies and is provided for under other state legislation.

Table 4 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon, or emissions and discharges from the prescribed premises (*Guideline: Environmental Siting* (DER 2020)).

Table 4: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from premises boundary
Rural residence, 361 Rocky Crossing Road	150 m south
Rural residence, 359 Rocky Crossing Road	250 m south south-west
Rural residence, 439 Rocky Crossing Road	530 m north
Rural residence, 310 Rocky Crossing Road	800 m south south-east
Rural residential subdivision of Warrenup – closest residences are 280 and 281 Rocky Crossing Road	990 m south
Rural residence, 485 Rocky Crossing Road	1,000 m north
Rural residence, 203 Willyung Road	1.3 km north-east
Rural residence, 227 Menang Drive	1.4 km south-west
Rural residence, 119 Kinjarling Road	1.4 km west north-west
Environmental receptors	Distance from prescribed activity
Environmentally sensitive area	~630 m north-west (within the Holcim Quarry)
Aboriginal heritage site	~1,000 m south-east and ~1,500m south-west
Priority 1 and 2 flora	~1,000 m north-west
Critically endangered fauna	~1,000 m north-east
Albany Waterways Conversation Area	Premises is within the defined area
Tributary of the Parker Brook Stream	~1,000 m south

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and take into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the Delegated Officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 5.

Works approval W6564/2021/1 that accompanies this decision report authorises construction and time-limited operations. The conditions in the issued works approval, as outlined in Table 5 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A new licence or amendment of existing licence L8614/2011/2 is required prior to the completion of the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the premises i.e., asphalt manufacturing. A risk assessment for the operational phase has been included in this decision report, however licence conditions will not be finalised until the department assesses the licence application.

Table 5: Risk assessment of potential emissions and discharges from the premises during construction and operation

Risk events				Risk rating ¹ C = consequence L = likelihood	Applicant (refer to Table 3) controls sufficient?	Conditions ^{2,3} of works approval (refer to instrument)	Reasoning
Sources / activities	Potential emission	Potential pathways and impact	Receptors				
Construction							
Construction/establishment of new asphalt plant and supporting infrastructure. Removal of existing infrastructure	Fugitive dust Noise	Air/windborne pathway causing impacts to amenity	Rural residential receptors located between 150 m and 1.4 km of the premises	C = Slight L = Possible Low Risk	NA	NA	The Delegated Officer considers that given construction works will be of short duration, the small scale of the construction works, and the works occurring within an operating quarry, there is a low risk of noise and dust emissions generated during construction impacting the amenity of surrounding residential receptors. The Noise Regulations apply to noise emissions associated with the construction works.
Operation <i>(including time-limited-operations operations)</i>							
Delivery and storage of raw materials including RAP, bitumen, aggregate and additives	Fugitive dust	Air/windborne pathway causing impacts to health and amenity	Rural residential receptors located between 150 m and 1.4 km of the premises	C = Possible L = Slight Low Risk	Y	Condition 1 Condition 6	The Delegated Officer considers that given the scale of the asphalt manufacturing operation (predicted to operate for ~190 hours per year to produce ~15,000 tpa) and the applicant's proposed infrastructure and operational controls for aggregate and RAP storage the risk of fugitive dust impacting the amenity of receptors can be reduced to an acceptable level. The Delegated Officer therefore applied the applicant's fugitive dust controls as infrastructure and operational requirements in the

Risk events				Risk rating ¹	Applicant (refer to Table 3) controls sufficient?	Conditions ^{2,3} of works approval (refer to instrument)	Reasoning
Sources / activities	Potential emission	Potential pathways and impact	Receptors	C = consequence L = likelihood			
							works approval.
	Noise			C = Slight L = Possible Low Risk	Y	NA	The Delegated Officer considers that given the scale of the asphalt manufacturing operation (production capacity of 15,000 tpa), the frequency of raw material deliveries required to support the operation will not be high (likely to occur once per day) and will occur during day-time hours. Accordingly, the Delegated Officer expects there to be minimal impact to the amenity of surrounding residences associated with noise from raw material deliveries to the premises.
	Bitumen, emulsion or diesel (hydrocarbons) from spills	Direct discharge to land causing contamination	Soils	C = Slight L = Possible Low Risk	Y	Condition 1 Condition 6	Due to the rapid setting nature of bitumen to a solid state as it cools, bitumen spills will be localised to the immediate area. As the premises is predominantly bitumised contamination is unlikely to result from small, localised spills. The Delegated Officer considers that the applicant's proposed bunding controls for emulsion, diesel and bitumen storage sufficiently mitigate the likelihood of large scale releases to land occurring and has applied these as requirements in the works approval to ensure the risk of resulting land contamination is reduced to an acceptable level.
	Odour (VOCs)	Air/windborne pathway	Rural residential receptors located	C = Slight		Condition 1	The Delegated Officer considers that given the scale of the asphalt

Risk events				Risk rating ¹ C = consequence L = likelihood	Applicant (refer to Table 3) controls sufficient?	Conditions ^{2,3} of works approval (refer to instrument)	Reasoning
Sources / activities	Potential emission	Potential pathways and impact	Receptors				
		causing impacts to amenity	between 150 m and 1.4 km of the premises boundary	L = Possible Low Risk		Condition 6	<p>manufacturing operation (production capacity of 15,000 tpa) there will be a low frequency of bitumen deliveries to the premises (2-3 times per week) and associated odour emissions. The new bitumen storage infrastructure and associated operational controls including temperature management and emissions capture and treatment are expected to reduce odour emissions associated with bitumen storage compared with the existing asphalt plant. Given the department has not received any complaints relating to odour from the existing premises the Delegated Officer expects minimal impact on amenity associated with bitumen delivery and storage.</p> <p>The Delegated Officer has applied the applicant's infrastructure and operational conditions relevant to bitumen storage as conditions in the works approval to ensure the risk of associated amenity impact is minimised.</p>
Blending of raw materials (aggregate, bitumen, RAP, additives) in the asphalt plant – rotary dryer, pugmill mixer and baghouse	Air emissions (combustion gases, particulates, metals and VOCs)	Air/windborne pathway causing impacts to health and/or amenity	Rural residential receptors located between 150 m and 1.4 km of the premises boundary	C = Minor L = Unlikely Medium Risk	Y	Condition 1 Condition 6 Condition 7 Condition 8 Condition 9 Conditions 11-12	<p>In determining the risk of air emissions from asphalt manufacturing causing amenity or health impacts the Delegated Officer considered the applicant's air quality impact assessment outcomes (section 2.4.1) and proposed controls.</p> <p>The assessment indicated that AGVs are predicted to be met at all</p>

Risk events				Risk rating ¹ C = consequence L = likelihood	Applicant (refer to Table 3) controls sufficient?	Conditions ^{2,3} of works approval (refer to instrument)	Reasoning
Sources / activities	Potential emission	Potential pathways and impact	Receptors				
							<p>sensitive receptors within the model domain being <6% for all criteria pollutants and the majority of principle and individual toxic substances. The most significant principle and individual toxic substance was VOCs as asphalt fumes which is predicted to be up to 97.8% of the AGV at the premises boundary however with dispersion, GLCs are predicted to be no more than 30% of the AGV at the nearest receptor.</p> <p>The Delegated Officer also considered the cumulative impact of asphalt fume given the close proximity of the Great Southern Sands asphalt plant to the premises. As there are no receptors occurring directly between the two premises, cumulative asphalt fume GLCs are not likely to be significantly different to those predicted for the new asphalt plant.</p> <p>Based on the above, the Delegated Officer considers there to be a medium risk of air emissions causing health or amenity impacts as it is unlikely that AGV's will be exceeded at receptors. The applicant's infrastructure and operational conditions relevant to the mitigation of air emissions, which include capture and treatment of air emissions via a two stage baghouse prior to discharge from a 12 m high stack, were taken into account in determining risk and</p>

Risk events				Risk rating ¹ C = consequence L = likelihood	Applicant (refer to Table 3) controls sufficient?	Conditions ^{2,3} of works approval (refer to instrument)	Reasoning
Sources / activities	Potential emission	Potential pathways and impact	Receptors				
							therefore have been included as requirements in the works approval. The Delegated Officer also applied a condition to ensure emissions from the baghouse are authorised, set limits for particulate matter and velocity based on the design of the baghouse and exhaust stack to ensure design levels are achieved and specified sampling requirements to ensure accurate and representative sampling and analysis of the baghouse emissions.
	Odour			C = Minor L = Unlikely Medium Risk	Y	Condition 1 Condition 6	In determining the risk of odour emissions from asphalt manufacturing causing amenity impacts, the Delegated Officer considered the applicant's odour assessment outcomes together with the complaint history relating to the existing asphalt plant on the premises (section 2.4.2). Comparative modelling of odour emissions from the existing asphalt plant and odour emissions expected from the replacement asphalt plant indicated there will be an 80% reduction in the downwind distance from the plant that an odour perception concentration of 1 OU is detectable. The extent of odour impact appears to be significantly reduced in comparison to the existing plant. The Delegated Officer reviewed complaint records relating the

Risk events				Risk rating ¹ C = consequence L = likelihood	Applicant (refer to Table 3) controls sufficient?	Conditions ^{2,3} of works approval (refer to instrument)	Reasoning
Sources / activities	Potential emission	Potential pathways and impact	Receptors				
							existing asphalt plant and found no record of any odour complaints. Given the extent of odour impact is expected to reduce compared with current activities, and these activities have not historically caused any recorded complaints the Delegated Officer does not expect odour impacts to result from operation of the new asphalt plant. The Delegated Officer has applied the applicant's infrastructure and operational conditions relevant to the mitigation of odour emissions from asphalt blending to ensure the risk of amenity impacts associated with odour exposure are minimised.
	Fugitive dust			C = Possible L = Slight Low Risk	Y	Condition 1 Condition 6	The Delegated Officer considers that fugitive dust emissions associated with raw material handling and transfers for asphalt manufacturing, will be sufficiently controlled by the applicant's infrastructure and operational controls, to prevent amenity and health impacts relating to fugitive dust emissions occurring. The Delegated Officer therefore applied the applicant's relevant infrastructure and operational dust management controls as conditions within the works approval.
	Noise			C = Moderate L = Possible	Y	Condition 6 Conditions	Based on the outcomes of the noise modelling discussed in section 2.5, the Delegated Officer considers that operation of the asphalt plant is

Risk events				Risk rating ¹ C = consequence L = likelihood	Applicant (refer to Table 3) controls sufficient?	Conditions ^{2,3} of works approval (refer to instrument)	Reasoning
Sources / activities	Potential emission	Potential pathways and impact	Receptors				
				Medium Risk		13-15	<p>likely to comply with the assigned noise levels when operated during standard daytime hours (7am to 7pm Mon-Sat and 9am-7pm Sun/public holiday) but there is a risk of night-time assigned noise levels being exceeded at the closest residential receptor if the asphalt plant is operated at night.</p> <p>In response to the department's concerns that the noise assessment did not provide sufficient confidence that the premises operation will be capable of complying with night-time assigned noise levels at the nearest receptor, the applicant agreed to restrict the premises operating hours to 7am to 7pm Mon-Sat and 9am-7pm Sun/public holiday) and undertake a noise verification study during the time-limited operation period on the works approval. The Delegated Officer has applied these controls in the works approval and will consider the outcomes of the noise verification study when a licence or amendment application is submitted for ongoing operation of the new asphalt plant (should the application propose operation of the premises during night-time periods).</p>

Risk events				Risk rating ¹ C = consequence L = likelihood	Applicant (refer to Table 3) controls sufficient?	Conditions ^{2,3} of works approval (refer to instrument)	Reasoning
Sources / activities	Potential emission	Potential pathways and impact	Receptors				
Dispatch of asphalt (truck loadout from pugmill)	Odour (VOCs)	Air/windborne pathway causing impacts to amenity	Rural residential receptors located between 150 m and 1.4 km of the premises boundary	C = Slight L = Possible Low Risk	Y	Condition 1 Condition 6	<p>The Delegated Officer considers the asphalt plant has been designed to adequately mitigate odour emissions associated with asphalt loadout. This includes no asphalt storage on the premises with asphalt being batch processed as required and transferred directly into truck trays via enclosed infrastructure, with filled truck trays being covered before departure. A slight negative pressure in the pugmill mixer also acts to draw fumes back through the pugmill jet dryer burners for destruction reducing fumes occurring during loadout.</p> <p>These infrastructure and operational controls have been applied as conditions of the works approval to ensure the risk of loadout odours causing amenity impact at nearby receptors remains low.</p>
	Asphalt (spillage)	Direct discharge to land causing contamination	Soils	C = Slight L = Unlikely Low Risk	Y	NA	Due to the rapid setting nature of asphalt to a solid state as it cools, asphalt spills will be localised to the immediate area where loadout occurs. As this area is bitumised contamination is unlikely to result from spills during loadout.
Stormwater on the premises	Potentially contaminated stormwater (sediments and	Direct discharge to land causing soil contamination	Soils of surrounding farmland Parker brook tributary ~1 km	C = Slight L = Unlikely Low Risk	Y	NA	The Delegated Officer considers stormwater will be adequately managed on the premises to prevent adverse impacts to surrounding farmland and surface water ecosystems by the bunding

Risk events				Risk rating ¹ C = consequence L = likelihood	Applicant (refer to Table 3) controls sufficient?	Conditions ^{2,3} of works approval (refer to instrument)	Reasoning
Sources / activities	Potential emission	Potential pathways and impact	Receptors				
	hydrocarbons)	Overland flow to surface water receptors causing water quality and surface water ecosystem deterioration	south, down gradient				controls proposed by the applicant for bitumen and hydrocarbon storage, together with the existing premises drainage and stormwater treatment system. The applicant's bunding controls have been included as conditions of the works approval and the existing licence relating to the premises includes monitoring and limits for stormwater discharges.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk Assessments* (DWER 2020).

Note 2: Proposed applicant controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

Note 3: Conditions **2, 3, 4, 5, 9, 16, 17, 18** and **19** are all department imposed conditions required for compliance reporting, authorising time limited operation, and general complaint and record keeping requirements

4. Consultation

Table 6 provides a summary of the consultation undertaken by the department.

Table 6: Consultation

Consultation method	Comments received	Department response
Application advertised on the department's website on 8 July 2021	The department received 14 public submissions during the public comment period in response to the advertisement of the application. Table 7 outlines the comments received.	Refer to Table 7 for the department's response to the comments received.
Local Government Authority advised of proposal on 12 August 2021	The City of Albany replied on 19 August 2021 advised that: <ul style="list-style-type: none"> the premises is zoned General Agriculture under the City's Local Planning Scheme No. 1; three development approvals have been granted with respect to the premises; the most recent development approval P2200469 was granted on 8 December 2020 for the replacement of the existing asphalt plant with new equipment. A copy of the most recent development approval was provided.	The Delegated Officer noted that the plans for the most recent development approval align with the application.
Applicant was provided with draft documents on 3 December 2021	The applicant responded to the draft documents on 22 December 2021. The applicant's comments are detailed Appendix 1.	The Delegated Officer considered the applicant's comments in finalising the decision report and works approval as detailed in Appendix 1.

Table 7 provides a summary of the key concerns raised in public submissions relating to the application. The Delegated Officer noted that of the 14 public submissions received, half related to concerns regarding expansion of the Holcim Quarry which the asphalt plant is located within. The department has not received any application regarding expansion of the Holcim Quarry at this time. Although the submissions didn't directly relate to the application, the Delegated Officer has included the issues raised in the summary and addressed in the context of the proposed asphalt plant.

Table 7: Summary of public submissions

Issue	No. of submissions	Summary of concerns	Department response
Noise	11	<p>Concerns with increased noise emissions associated with heavy and light vehicle movements and operation of the asphalt plant.</p> <p>Some submissions raised that increased noise is already experienced due to construction of the nearby Great Southern Sands asphalt plant and that noise from the quarry is already an issue for some residents and this could be exacerbated by the asphalt plant.</p>	<p>The Delegated Officer considered the applicant's noise impact assessment relating to noise emissions associated with activities occurring on the premises (section 2.5) which informed the risk assessment for noise emissions in Table 5 and the application of conditions relating to noise emissions in the works approval.</p> <p>The department has not received any noise complaints relating to construction of the nearby Great Southern Sands asphalt plant.</p>
	3	<p>Concerns relating to breaking and acceleration noise on and off Menang Drive. Residents are already experiencing increased road traffic noise from Menang Drive.</p>	<p>The scope of the department's assessment does not extend to include related activities which occur outside the premises boundary.</p>
Traffic	4	<p>Concerns relate to increased truck movements on Rocky Crossing Road and Menang Drive by vehicles travelling to and from the asphalt plant (in particular if the asphalt plant operates 24/7). Some submissions highlighted that Menang Drive is a ring road and when constructed was primarily for grain and woodchip trucks, and was not a road for industry.</p>	<p>Traffic and its related impacts which occur outside the premises boundary are not within the scope of assessments under Part V of the EP Act rather are a matter considered by local government in development approval processes under the <i>Planning and Development Act 2005</i>.</p> <p>It highlighted however that proposed throughput of the new asphalt plant is significantly less (15,000 tpa) than the existing licence L8614/2011/2 for the premises and in line with previously reported production from the existing plant indicating current traffic conditions are unlikely to change as a result of operation of the replacement asphalt plant.</p>
Air emissions/ pollution (fumes and dust) and associated health impacts	7	<p>Concerns relate to health impacts to surrounding residents resulting from air emissions especially carcinogens, VOCs, arsenic, benzene, formaldehyde and other toxic chemicals</p>	<p>The Delegated Officer considered the applicant's air quality assessment for operation of the asphalt plant (section 2.4.1) which informed the risk assessment for air emissions in Table 5. The modelling predicted that AGVs will be met at all sensitive receptors within the model domain for all pollutants in the scope of the assessment (Table 1). The applicant's air emission</p>

Issue	No. of submissions	Summary of concerns	Department response
		Those who already have respiratory illness will suffer further if there is increased air pollution. Some submissions called for an independent full health appraisal of the application.	controls were determined to be appropriate to mitigate the risk of health impacts and were included in the works approval conditions.
Dust emissions	5	Concerns relating to increased dust emissions and these impact on cars, inside houses and on rainwater collection by residents	The Delegated Officer considered the risk associated with dust emission impacts (Table 5) and found the applicant's controls relating to fugitive dust appropriately mitigate this risk therefore applied these as conditions in the works approval.
Impact to food production	1	Emissions (air and dust) may impact on food grown by residences making it unhealthy to eat.	As per the above two lines the department's risk assessment considered air and fugitive dust emissions and found the applicant's controls appropriate to mitigate this risk.
Odour	2	Concerns relate to potential impacts of odour on surrounding residents as prevailing winds are significantly from the north west and north east in summer which would blow odour over the rural residential subdivision and houses to the south of the plant. Odours have been detected which seem to be originating from the nearby GSS premises.	The Delegated Officer considered the applicant's Odour assessment for operation of the asphalt plant (section 2.4.2) which informed the risk assessment for odour in Table 5. Odour impact appears to be significantly reduced in comparison to the existing plant, which the department has not received any odour complaints regarding.
Environmental degradation and impact to native flora and fauna	6	The emissions from the plant will impact on the unique environment, local flora and fauna with particular mention made of wetlands, black cockatoos, possums and birdlife. Dust and spills could contaminate land.	The Delegated Officer has considered the risk of premises emissions impacting on the environment, public health and amenity in this Decision Report (Table 5) finding that the applicant's proposed controls (Table 3) suitably mitigate the risk and applying relevant controls as conditions in the works approval.
Capacity of the plant and operating hours	2	The proposed plant is double the capacity of the nearby Great Southern Sands Asphalt Plant which is under construction and if operated 24/7 could produce up to 700,000 tonnes per year of asphalt.	The application has been assessed based on the proposed production capacity of 15,000 tpa and this is included in the works approval. Any proposal to increase production above the assessed capacity may increase emissions and would therefore require further assessment by the department.

Issue	No. of submissions	Summary of concerns	Department response
Planning approvals and zoning/location of plant	3	The premises is zoned General Agriculture (not Industrial) and surrounding areas are zoned General Agriculture and Rural Residential therefore the premises is incompatible with surrounding areas. The plant should be located in a designated Industrial Area (some submissions requested the plant be moved to the Industrial precinct at the end of Menang Drive).	Zoning and planning approvals are managed through local government development approval processes under the <i>Planning and Development Act 2005</i> . Land use compatibility is a land use planning manner and beyond the scope of assessments and instruments issued under Part V of the EP Act.
Proximity of the plant to Willyung/residences	6	Concern regarding the proximity of the asphalt plant to residents of Willyung and Rocky Crossing Road.	In accordance with the department's <i>Guideline: Risk assessments (2020)</i> the distance between the asphalt plant and sensitive receptors has been taken into account in assessing risk events associated with emissions and discharges from the premises (refer to Table 4 and Table 5).
Aboriginal heritage	2	Concerns that the significance of Mt Willyung which has been a significant cultural site for 40,000 years and is home to some of the rarest examples indigenous rock art in the south-west	<p>The department reviewed the location of registered aboriginal heritage sites and found the closest to be ~1,000 m from the premises boundary. The premises activities will be located entirely within an already disturbed area therefore no new disturbance will occur.</p> <p>The Delegated Officer noted that these concerns were raised in relation to expansion of the Quarry with specific reference made to mining activity in the submission.</p>
Amenity, health and wellbeing/quality of life impacts	7	Residents have raised that their amenity, lifestyle and health and wellbeing will be impacted upon by emissions from the plant including noise, odour, dust and gaseous emissions.	The department has undertaken a risk assessment of the premises emissions and discharges which is documented in Table 5. Impact to health and amenity associated with the premises emissions and discharges were considered in this assessment. The applicant's proposed controls are considered suitable to mitigate potential impacts.
Impacts to livestock	2	Livestock disruptions and concern livestock in surrounding area will be impacted by air emissions from the premises	The integration of activities on the premises with surrounding land uses is a matter considered by local government in

Issue	No. of submissions	Summary of concerns	Department response
			development approval processes under the <i>Planning and Development Act 2005</i> .
Devaluation of property	4	Concerns that the property values will reduce due to impacts of noise and air emissions. Previous development has already decreased the value of property in the area and the downward trend is expected to continue.	Property devaluation is not within the scope of the department's assessment of applications made under Part V of the EP Act. The department's scope for such assessments is detailed in the <i>Guideline: Risk assessments (2020)</i> .
Fire risk	4	Concern there will be increased fire risk associated with operation of the asphalt plant	Fire risk is a matter considered by local government in development approval processes under the <i>Planning and Development Act 2005</i> . It is not typically within the scope of the department's assessment unless emissions from a premises fire are likely to contain toxic pollutants which are an immediate risk to public health.
Regulatory compliance	1	Concerns regarding the applicant's listing 13 regulatory breaches in their application and the ability of the applicant to manage the site appropriately. Lack of confidence with government agencies in policing and auditing the operations of the site.	The Delegated Officer reviewed the applicant's history of charges, convictions and penalties for offences and noted all related to activities/events at premises outside of Western Australia. The Delegated Officer also reviewed its internal records relating to the premises and found only minor administrative non-compliances associated with operation of the existing plant. Based on this the Delegated Officer does not consider the applicant's regulatory compliance history to have a material impact on the risk assessment for the application.
Stormwater runoff	2	Concerns regarding stormwater runoff impacting surrounding area.	The Delegated Officer considered the risk of stormwater runoff from the premises impacting receptors (Table 5) and found the applicant's proposed controls and existing stormwater management infrastructure on the premises appropriately mitigate this risk.
General opposition to the application	1	General objection to the application.	The Delegated Officer noted the comments.

Issue	No. of submissions	Summary of concerns	Department response
Lack of consultation	3	<p>Concern regarding lack of time to make a submissions and insufficient notice given to nearby residents, who were not notified of the application.</p> <p>Submissions considered the applicant should have contacted and informed all residents within a 2 km radius of the premises of their proposal.</p>	<p>The department's public consultation process for applications received under Part V of the EP Act is detailed in section 13.2 of the <i>Guideline: Industry Regulation Guide to Licensing (2019)</i>.</p> <p>In line with this the department advertised the application on its website on 8 July 2021 for a period of 21 days and in <i>The West Australian</i> newspaper on 12 July 2021 seeking comment on the application.</p> <p>The department referred to its stakeholder and complaint records for the existing asphalt plant on the premises to determine relevant direct interest public stakeholders for the premises and found none were recorded.</p> <p>The department has recorded all persons who submitted public comment on the application as stakeholders for the premises and will notify them of the instrument's grant via correspondence.</p>

5. Decision

Based on the assessment in this decision report, the Delegated Officer has determined that the proposal to construct and operate a new asphalt plant at Lot 2 Rocky Crossing Road, Willyung, in place of the existing asphalt plant which has reached the end of its serviceable life, will not pose an unacceptable risk of impacts to receptors. This determination is based on the following:

- The asphalt plant is only expected to operate for 190 hours per year to produce 15,000 tpa of asphalt.
- Batch processing and loading of asphalt will occur with no asphalt storage on the premises.
- Air emission modelling indicates GLCs will be below AGLs at all surrounding receptors.
- Comparative odour dispersion modelling indicates odour emissions will be reduced from those currently emitted from the existing asphalt plant on the premises.
- Noise modelling indicates noise emissions from the premises will comply with the Noise Regulations during daytime periods.
- The plant will not operate during night periods unless a noise verification study demonstrates noise emissions are capable of complying with the Noise Regulations during night operation (subject to future assessment).

In order to mitigate the potential for environmental, amenity or health impacts to occur the applicant has proposed the following key controls which have been imposed in the works approval as they are considered critical to maintaining an acceptable level of risk:

- Emissions from the asphalt plant will be directed to a two-stage baghouse for treatment and discharged via a 12 m high stack.
- The baghouse will be designed to reduce particulate emissions to <20 m³/s.
- Regular inspections and maintenance of the baghouse will occur to replace broken/faulty bags.
- Regular boundary odour screening will be undertaken when the plant is operational.
- A Process Control System will monitor and manage the temperature of the plant to ensure it remains optimal and avoids high temperatures more likely to cause asphalt fume emissions
- The Process Control System will also monitor the baghouse performance and cease operation of the asphalt plant in the event faults are detected.
- New bitumen storage tanks and bunding will be installed with tank design features such as additional insulation and vapour capture conducive to reduced odour emissions.

Due to concern regarding the conservatism of noise modelling and uncertainty that the premises would be capable of complying with the Noise Regulations during night operation the applicant also agreed to restrict the plant's operating hours and undertake a noise verification study during time limited operations. The intent of the verification study is to assess whether noise emissions can comply with the Noise Regulations assigned levels at night. The department will reconsider the operating hours of the premises when an application is submitted for a licence amendment or new licence for ongoing operation of the premises.

The Delegated Officer is satisfied the above controls lower the overall risk profile of the premises, and adequately address the concerns raised in public submissions regarding the risk of impacts to nearby receptors. The proposed production rate of 15,000 tpa was a key consideration in the Delegated Officer's assessment therefore the assessed production rate has

been specified on the works approval and will be specified on the licence when amended.

Works Approval W6564/2021/1 that accompanies this report authorises construction and time-limited operations only. The conditions in the issued works approval, as outlined in the above risk table have been determined in accordance with the *Guidance Statement: Setting Conditions (DER 2015)*.

A licence amendment or new licence is required to authorise ongoing emissions associated with the operation of the premises. A risk assessment for the operational phase has been included in this report, however licence conditions will not be finalised until the department assesses the licence application. In particular, if the applicant seeks to operate the premises during night-time periods, the verification noise study will need to demonstrate compliance with the Noise Regulations. Conditions will be imposed to ensure day-to-day operations do not pose an unacceptable risk of impacts to on and off-site receptors.

6. Conclusion

Based on the assessment in this decision report, the Delegated Officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2019a, *Draft Guideline: Air emissions*, Perth, Western Australia.
3. DWER 2019b, *Guideline: Odour emissions*, Perth, Western Australia.
4. DWER 2020, *Guideline: Environmental siting*, Perth, Western Australia.
5. DWER 2020, *Guideline: Risk assessments*, Perth, Western Australia.
6. Downer EDI Works Pty Ltd 2021a, *Application for a Works Approval under the Environmental Protection Act 1986 (including application form and attachments)*, Perth, Western Australia.
7. Downer EDI Works Pty Ltd 2021b, *Response to W6564 Draft Decision (including attachments)*, Perth, Western Australia.
8. Ektimo 2021, *Air quality and odour assessment of various emissions to air from a proposed replacement hot mix asphalt plant, Willyung, Albany, Western Australia, Prepared for Downer EDI Works Pty Ltd, Cockburn Central, Western Australia.*
9. Assured Environmental 2021, *Albany Asphalt Plant noise impact assessment, Prepared for Downer EDI Group, Hornsby, New South Wales.*
10. National Environmental Protection Council 2021, *National Environment Protection (Ambient Air Quality) Measure*, Canberra, Australian Capital Territory.

Appendix 1: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of applicant's comment	Department's response
Condition 1 Table 1, Item 11	Requested the storage bay construction requirements be revised to specify a bitumen, rather than concrete base as this is the intended design for the storage bays	The proposed change will not alter the assessed risk profile associated with raw material storage and therefore the storage bay construction requirements were amended to include a bitumen base.
Condition 6 Table 2, Item 2	Noted that there is ambiguity in the terminology 'low sulphur bitumen' used in the works approval and decision report as Class 320 bitumen is not typically referred to as 'low sulfur bitumen'. This could lead to misinterpretation for compliance as the term can be interpreted as meaning bitumen products which have additives for odour reduction (these products have not been available in the WA market for some time). The application references to 'low sulfur bitumen' were in reference to the Class 320 Bitumen product which is currently used at the existing asphalt plant and in the plant which was used for the comparative odour modelling and assessment. Class 320 bitumen has been cut of volatile, shorter chain odorous hydrocarbons.	The Delegated Officer noted that the application made reference to both 'low sulphur bitumen' and 'low sulphur Class 320 bitumen' interchangeably but intended to mean the same product, one which had been cut of volatile, shorter chain odorous hydrocarbons. The intent of specifying the type of bitumen to be used in the works approval requirements is to ensure the odour risk is maintained as assessed. The Delegated Officer determined to revise the term 'low sulfur bitumen' to 'Class 320 Bitumen' in the works approval and decision report as the revised term ensures the requirement is clear and unambiguous and is representative of the applicant's odour control relating to the bitumen product used which was considered in the risk assessment.
Condition 6 Table 2, Item 4	Requested clarification on the requirement for weekly downwind odour screening.	The requirement to undertake downwind boundary odour screening was included in the works approval as the applicant proposed this activity as an odour control when the plant is in operation. It is the responsibility of the instrument holder to determine how and where the required downwind boundary odour screening will occur and to be able to demonstrate that they have met the requirements of the condition through maintaining records of the activity being undertaken. A location is not specified in the condition other than 'downwind boundary' screening, as the location the activity occurs at may change dependant on wind direction at the time it is undertaken. The condition intent is that a check for detectable odour is undertaken with the results being recorded to demonstrate the requirement has been met.
Condition 8 Table 4	Requested clarification that particulate matter limits are to be referenced to 17% O ₂ concentration.	The Delegated Officer noted that an oxygen correction factor was not included in the draft works approval for stack limits or monitoring. Tables 4 and 5 have been updated to specify monitoring results are to be referenced to STP dry and 17% O ₂ .
Condition 9 Table 5	Requested the monitoring frequency be amended from once within four weeks to once within six week of time limited operations commencing to align with	The Delegated Officer considered the request to amend the monitoring frequency is appropriate, particularly given the plant only operating for short durations, and will

Condition	Summary of applicant's comment	Department's response
	<p>manufacturers recommendations for the baghouse. The Baghouse technical data provided in the application specifies that verification of particulate matter concentrations should not be undertaken earlier than four weeks after commissioning, to ensure a sufficient saturation level of the bags is reached.</p>	<p>not change the risk profile, therefore amended the monitoring frequency to be within six weeks of time limited operation commencing.</p>
NA	<p>Advised that the imported filler silo previously removed from the plant design will now be included in the plant design but may not be used initially. Details of the silo dust controls were provided.</p>	<p>The Delegated Officer reviewed the proposed dust controls for the imported filler silo and determined inclusion of the infrastructure on the premises will not change the assessed risk profile provided the proposed dust controls are implemented. The imported filler silo has been included in the works approval with the applicant's proposed dust controls included as construction and operational requirements in conditions 1 and 6.</p>
Decision Report	<p>Provided corrected results for Scenario 2 of the noise assessment due to errors in the original report (Table 2).</p> <p>Confirmed the proposed delivery schedule for raw materials.</p> <p>Provided updated premises plan</p>	<p>The Delegated Officer noted the information provided and updated the works approval and decision report where required.</p>