



Application for works approval

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

Works approval number	W6663/2022/1
Applicant	Hanson Construction Materials Pty Ltd
ACN	009 679 734
DWER file number	DER2021/000597
Premises	Mt Barker Quarry 101 Pellew Road KENDENUP WA 6323
Date of report	13 July 2022
Status of report	Final

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 premises. As a result of this assessment, works approval W6663/2022/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the delegated officer 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 and overview of premises

Background

On 4 March 2022, Hanson Construction Materials Pty Ltd (the applicant) applied for a works approval under section 54 of the *Environmental Protection Act 1986* to construct and operate a concrete batching plant adjacent to its existing hard rock quarry in Kendenup, near Mount Barker.

Historically, and prior to the applicant operating the hard rock quarry in 2003, there was an operational concrete batching plant within the quarry site. This plant was decommissioned; however, the plant infrastructure has remained in place, including a decommissioned vertical cement silo, which will be relocated and used as part of this proposal.

The premises relates to prescribed premises category 77: concrete batching and cement products manufacture, with an assessed production capacity of 20,000 tonnes per year under Schedule 1 of the Environmental Protection Regulations 1987.

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 W6663/2022/1.

Existing concrete facilities

The proposed batching plant site is about 430 m to the southeast of the existing quarry and comprises an existing concrete hardstand area. A U-shaped screening bund has already been constructed to partially screen and to mitigate noise, dust and visual amenity impacts from the proposed concrete batching operations.

A stormwater catchment basin has also already been constructed to the southeast of the proposed plant site, to collect stormwater runoff from non-process areas.

The area has been historically cleared; therefore, no clearing is required.

Proposed works

As most of the infrastructure required for the proposed concrete batching plant operations already exists, the remaining infrastructure to be constructed will involve:

- dropping and relocating the existing decommissioned vertical cement silo into place on the existing hardstand area, and constructing associated load ramp and load out bay ramp;
- constructing a subsurface wedge pit, washout pits, bunded admixture storage areas, and loading gantry slump stand; and
- installing water storage tanks, a container batch control room and genset onto the site.

3. Consultation

The application was advertised for public comment on the department’s website during April 2022. No public submissions were received in the timeframe specified.

3.1 Other relevant approvals

Planning approval

The Shire of Plantagenet has received a development application for the proposed batching plant and has advised it has received a submission from a local resident with concerns about potential impacts from dust.

The application is currently being assessed and is yet to have been determined.

4. 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.

4.1 Source-pathways and receptors

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 1 below. Table 1 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Table 1: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Lowering and re-lifting the vertical silo into place. Installing storage tanks and container batch control room and gen set on site.	Air / windborne pathway	Water truck during construction of earthworks and on roads if required. Sprinklers and misters are available for use on roads. Operation to cease if wind strong enough to negate dust control measures
Noise	Construction of the subsurface wedge pit, washout pit and banded admixture storage area.		Construction will be short term and take place between 7am and 5pm weekdays. The separation distance sufficient to prevent noise from construction impacting sensitive receptors.
Operation			
Dust	Delivery of raw materials, batching of concrete, slumping and vehicle washdown facility	Air / windborne pathway	Dust suppression sprays at loading point Concrete areas kept clean by hosing or sweeping Cement is delivered in a sealed tanker with pneumatic discharge Silo is fitted with a fabric filter dust

Emission	Sources	Potential pathways	Proposed controls
			collector and exhaust is ducted within 1 metre of the ground Fabric filter is auto cleaned at end of each filling cycle Cement weigh hoppers are totally enclosed and vented to fabric filter dust collector. Conveyors and transfer points enclosed Sprinklers on stockpiles
Noise		Air / windborne pathway	Sand and cement deliveries in normal operating hours 7am to 5 pm. 3.5 m high screening bund has been constructed on the site perimeter to west, south and east. Genset to be enclosed
Contaminated water run-off		Direct discharge	Separate runoff from potentially contaminated catchment from the remainder of the site Capture of potentially contaminated runoff for recycling to concrete batching activities.

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

Table 2: Sensitive receptors

Human receptors	Distance from prescribed activity
Closest residential dwelling	620 m west of batching plant
Environmental receptors	Distance from prescribed activity
TEC – eucalyptus woodland of Western Australian wheat belt	on the same cadastral lot about 400 m from proposed batching plant

4.2 Concrete Batching Regulations

An appraisal of the proposal against the infrastructure requirements of the Environmental Protection (Concrete Batching and Cement Products Manufacturing) Regulations 1998 is summarised in Table 3.

Table 3: Comparison with Concrete Batching Regulations

Infrastructure requirement of regulations	Applicant control
An operator must not carry on concrete batching or cement product manufacturing unless it is carried on in such a manner that no visible dust escapes from the premises (or if there are no defined boundaries to	Concrete areas will be kept clean by hosing or sweeping.

the premises, no such dust escapes onto any place to which the public has access).	Cement will be delivered in sealed tanker with pneumatic discharge.
An operator must ensure that all parts of the premises to which vehicles have access — a) are either — i. paved or sealed; or ii. treated with water or surfactants as often as is necessary; and b) are swept, hosed or otherwise cleared of any loose aggregate, sand, cement, concrete or other material as often as is necessary, to prevent loose material adhering to vehicles and to minimize dust.	All operational areas on the premises are concrete or compacted roadbase hardstand. Concrete areas will be kept clean by hosing or sweeping. Sprinklers and water truck will be available for unsealed roads.
An operator must not allow any vehicles carrying concrete, or any of the ingredients of concrete, to leave the premises until it has been washed free of cement slurry and dust.	Agitator trucks will be washed in the wash pit and cleaned of cement slurry and dust before leaving the premises.
An operator must store all aggregate and sand kept on the premises in storage bins or bays which are designed to minimize airborne dust, or where the use of such bins or bays is not practicable, in stockpiles on the ground.	Aggregate and sand will be kept in stockpiles with sprinklers and sprays to prevent dust lift off.
Where aggregate or sand is stored in a stockpile on the ground the operator must keep it covered or damp, or otherwise treat it, so as to minimise airborne dust.	
If, during the unloading of aggregate or sand, any visible dust escapes from the premises the operator must ensure that unloading stops immediately and does not resume until appropriate measures have been taken to prevent the escape of the dust from the premises.	Aggregate and sand stockpiles will be located at the northern end of the premises, as far as practicable away from Pellow Rd. A 3.5 m high screening bund is in place to help prevent dust escaping beyond the premises boundary.
An operator must store all cement kept on the premises — a) in bags; or b) in a cement storage silo — i. which complies with subregulation (2); or ii. which is one of a series of interconnected silos at least one of which complies with subregulation (2).	Cement silo is fitted with fabric filter dust collector and the exhaust dust is ducted to within 1 metre of the ground. The silo is fitted with high level sensor, visual and audible alarms and automatic cut-off valves. The fabric filter has auto-cleaning at end of each filling cycle.
To comply with this subregulation a cement storage silo must be fitted with — a) an air cleaning system, which complies with regulation 7, through which all air extracted from the silo while it is being filled must pass before it is discharged into the environment; and b) either — i. a level indicator which complies with regulation 8(1); or	

<ul style="list-style-type: none"> ii. a relief valve, which complies with regulation 8(3). 	
<p>The air cleaning system for a cement storage silo must —</p> <ul style="list-style-type: none"> a) be either — <ul style="list-style-type: none"> i. a mechanical rapping air cleaning system with a minimum filter area of 23 square metres; or ii. a reverse pulse air cleaning system which reduces dust emissions to less than 50 milligrams of particulate matter per cubic metre; <p>and</p> <ul style="list-style-type: none"> b) discharge air from the system into a weigh hopper or to an outlet which is within one metre of the ground. 	<p>Reverse pulse dust filter air cleaning system fitted to silo.</p>
<p>A level indicator system for a cement storage silo must include —</p> <ul style="list-style-type: none"> a) an audible alarm which sounds if cement stored in the silo reaches — <ul style="list-style-type: none"> i. 0.6 m below the inlet to the silo's air cleaning system; or ii. 2 tonnes less than the silo's maximum capacity; <p>and</p> <ul style="list-style-type: none"> b) a test circuit which indicates whether the level indicator and alarm are working correctly. 	<p>The silo is fitted with high level sensor, visual and audible alarms and automatic cut-off valves.</p> <p>Cement silo is fitted with fabric filter dust collector and the exhaust dust is ducted to within 1 metre of the ground.</p>
<p>A relief valve for a cement storage silo must be designed —</p> <ul style="list-style-type: none"> a) to automatically prevent the level of cement in the silo rising above the level referred to in subregulation (1)(a)(i) or (ii); and b) so that any excess cement is piped into a weigh hopper or to an outlet which is within one metre of the ground. 	
<p>An operator must not use —</p> <ul style="list-style-type: none"> a) a hopper, conveyor, chute, bucket elevator or transfer point to move material on the premises; or b) any area of the premises to load agitators, <p>unless it is —</p> <ul style="list-style-type: none"> c) enclosed; d) fitted with wind shields, water sprays or a dust extraction system; or e) otherwise designed and operated, so as to prevent the escape of any visible dust. 	<p>Conveyors fitted with windshields and transfer points have misting sprays.</p>
<p>An operator must ensure that —</p> <ul style="list-style-type: none"> a) all water draining off any area where agitators, mixers or moulds are loaded or where concrete is batched drains into a slurry pit; 	<p>Concrete silt trap to separate water from aggregate and for reuse.</p> <p>Wash water from concrete washout bunker drains to silt trap.</p>

<ul style="list-style-type: none"> b) all water used to wash out agitators, mixers or moulds or to clean up spilt material drains into a slurry pit; c) all other water draining off sealed or paved areas of the premises and which is likely to contain waste material drains into a slurry pit or settling pond; and d) any water removed from, or which might overflow from, a slurry pit drains into a settling pond. 	<p>Wedge pit and agitator truck wash out bay</p> <p>No process wastewater is discharged from the site. This water will be recycled for use in the concrete batching process.</p>
<p>An operator must ensure that no water used in concrete batching or cement product manufacturing is discharged from the premises until —</p> <ul style="list-style-type: none"> a) it has been — <ul style="list-style-type: none"> i. through a silt trap; or ii. contained in a settling pond for long enough to allow all particulate matter to settle out; <p>and</p> <ul style="list-style-type: none"> b) if the water is likely to contain hydrocarbons, it has been through an oil interceptor. 	
<p>An operator must not allow settled material in a slurry pit to —</p> <ul style="list-style-type: none"> a) dry out (except when the pit is dried out to allow the settled material to be removed); or b) be higher than 30 cm below the top of the slurry pit walls. 	<p>Concrete silt trap to separate water from aggregate and for reuse</p> <p>Surface water run-off from the road base surfaces in non-process areas will be graded to a single drainage basin located to the south-east of the plant. An automated transfer pump will be installed in the basin to reclaim the water for plant / quarry use and manage the greater than 100-year ARI events.</p> <p>Excess water will be pumped to the quarry pit. It is not anticipated that any surface water will be discharged from the quarry into the environment</p>
<p>An operator must ensure that all waste created during concrete batching or cement product manufacturing (including material removed from slurry pits, settling ponds, silt traps and oil interceptors) is —</p> <ul style="list-style-type: none"> a) recycled; or b) disposed of at an appropriate landfill site or waste treatment facility the occupier of which holds a licence under Part V of the Act in respect of that site or facility. 	<p>Solids from the concrete wedge pits will be collected and recycled or disposed of off-site.</p> <p>Water is pumped from the silt trap into the recycled water tank for reuse in the batching process.</p>

4.3 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 4.1. 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 4.1),

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 4.

Works approval W6663/2022/1 that accompanies this decision report authorises construction of the concrete batching plant. The conditions in the issued works approval, as outlined in Table 4 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 4: Risk assessment of potential emissions and discharges from the premises during construction and operation

Risk events					Risk rating ¹ C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	Reasoning
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls				
Construction								
Lowering and re-lifting the vertical silo into place. Installing storage tanks and container batch control room and gen set on site. Construction of the subsurface wedge pit, washout pit and bunded admixture storage area.	Dust	Air / windborne pathway causing impacts to health and amenity	Residence 620m west	Refer to Section 3.1	C = Minor L = Rare Low Risk	Y	NA	There is sufficient separation in place (620 m to nearest dwelling). Short duration of works. Noise and dust levels are not expected to differ significantly from existing quarry operations during construction works.
	Noise			Refer to Section 3.1	C = Minor L = Rare Low Risk	Y	NA	
Operation								
Delivery of raw materials, batching of concrete, slumping and vehicle washdown facility	Noise	Air / windborne pathway causing impacts to health and amenity	Residence 620m west	Refer to Section 3.1	C = Minor L = Unlikely Medium Risk	Y	Condition 1	There is sufficient separation in place (620 m to nearest dwelling). U-shaped screening bund in place to mitigate noise levels. Day time operations only (no night time operations). Noise levels are expected to comply with the Noise Regulations.
	Dust	Air / windborne pathway causing impacts to health and amenity	Residence 620m west. Residences in area use rainwater collection for primary water supply	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Condition 1	Proposed dust and water management controls comply with the requirements of the Concrete Batching Regulations. Condition 1 of the works approval will impose infrastructure controls to ensure the operations comply with the minimum requirements set out in the Concrete Batching Regulations.
	Sediment laden stormwater	Overland runoff potentially causing ecosystem disturbance or impacting surface water quality	Surrounding land or council road and drain infrastructure	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Condition 1	Stormwater run-off collected in sump at south east of premises and transferred to quarry pit, if required.

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.

5. Decision

The delegated officer has determined the proposal to construct and operate a concrete batching plant, with an assessed throughput of 20,000 tonnes per year, does not pose an unacceptable risk of impacts to public health and the environment. This determination is based on the following:

- the location of the premises, being adjacent to the applicant's existing hard rock quarry with sufficient separation to sensitive human and environmental receptors;
- the proposed scale and nature of the operations, which will only be used to meet the local demand for concrete products (i.e., plant is likely to sit idle for extended periods); and
- most of the infrastructure required for the proposed operations is already in existing and in place.

To minimise the potential for impacts to human health and the environment, the applicant has proposed the following engineering controls, which will be imposed on the works approval as they are critical for maintaining an acceptable level of risk:

- cement storage silo will be installed with dust controls that comply with the requirements set out in the Concrete Batching Regulations, to minimise fugitive dust impacts;
- infrastructure will be constructed to manage stormwater and wash water in accordance with the requirements set out in the Concrete Batching Regulations; and
- a 3.5 m high screening bund has been constructed to partially screen and to mitigate noise, dust and visual amenity impacts from the proposed concrete batching operations.

The delegated officer is satisfied the above controls lower the overall risk profile of the premises, and adequately addresses the potential for unacceptable impacts to public health and the environment.

Works approval and registration

Works Approval W6663/2022/1 that accompanies this report authorises construction works 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 registration is required for ongoing operation of the batching plant following construction. The applicant is advised to ensure it firstly complies with the compliance reporting requirements of the works approval, prior to commencing operations.

Ongoing operations will be subject to the requirements set out in the Concrete Batching Regulations.

Applicant comments on draft decision

The applicant was provided with drafts of the works approval and this report on 22 June 2022 and waived the consultation period with no additional comments.

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.

MANAGER, PROCESS INDUSTRIES REGULATORY SERVICES

Delegated officer

under section 20 of the Environmental Protection Act 1986

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia