



Licence Number	L8986/2016/1
Licence Holder	Holcim (Australia) Pty Ltd
ACN	099 732 297
File Number:	DER2016/001471-1
Premises	Jandabup Sand Quarry JANDABUP WA 6077 Mining tenements M70/1248 and M70/1250 360 Hawkins Road, JANDABUP WA 6077
Date of Amendment	11 September 2019

Amendment

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act and follows.

Tim Gentle

Manager Resource Industries

REGULATORY SERVICES

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Definitions and interpretation

Definitions

In this Amendment Notice, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
Category	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CAWS Act	<i>Country Area Water Supply Act 1947 (WA)</i>
CEO	Means Chief Executive Officer. CEO for the purposes of correspondence means: Director General Department Administering the <i>Environmental Protection Act 1986</i> Locked Bag 10 JOONDALUP DC WA 6919 Email: info@dwer.wa.gov.au
DWER	Department of Water and Environmental Regulation
Delegated Officer	an officer under section 20 of the EP Act
DMIRS	Department of Mines, Industry Regulation and Safety
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
EPA	Environmental Protection Authority
Existing Licence	The Licence L8986/2016/1, Amendment Notice 2 issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this Review
Licence Holder	Holcim (Australia) Pty Limited
Noise Regulations	<i>Environmental Protection (Noise) Regulations 1997 (WA)</i>
Notice	refers to this document
Premises	refers to Jandabup Sand Quarry to which this Amendment Notice applies, as specified at the front of this Amendment Notice.
PDWSA	Public Drinking Water Source Areas
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>
WHPZ'S	Well Head Protection Zones

Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Licence L8986/2016/1 (Existing Licence) issued to Holcim Australia Pty Limited (Licence Holder) under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

This notice is limited only to an application received by the Department of Water and Environmental Regulation (DWER) on 24 December 2018 to amend the Existing Licence to include the operation of a new screening wash plant coupled with a rinser (wash plant/rinser), including the construction of a sediment pond to be used for storage and recovery of wastewater from washing activities at Jandabup Sand Quarry (the Premises). There are no changes to the daily throughputs as a result of this Notice and no other changes to the aspects of the Existing Licence relating to Category 12 have been requested by the Licence Holder.

This notice assesses the potential environmental and public health risks from emissions and discharges from the new screening wash plant/rinser and sediment pond.

The following DER guidance statements have informed the decision made on this amendment;

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Decision Making (February 2017)*
- *Guidance Statement: Risk Assessment (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

Amendment description

Wash plant

The proposed mobile washing system utilises water to screen and separate raw sand to produce sand of various size specifications that is washed, then rinsed and finally stockpiled to be later loaded into trucks and hauled offsite. The indicative layout of the wash plant and rinser is shown in Figures 1 and 2 below.

Details of the wash plant equipment and infrastructure include:

- Located within the existing quarry floor as shown in Figure 4. The plant will be moved across the quarry floor to remain near the active excavation face. It will always remain outside of the Well Head Protection Zones (WHPZ).
- Equipment description includes a mobile, skid-mounted screening, washing and conveyor plants driven by a diesel motor and 200kVA genset.
- Washing process will involve physical separation techniques – no chemical additives will be used. The fines (about 3% by volume of the feed material) will be piped to a sedimentation pond for drying and water recovery.
- Production rate is 50,000 tonnes/year, typically 100 tonnes/hour.
- Operating period: typically, eight hours per day (between 7am to 5pm), five days per week (Monday to Friday). Washing may also occur on the occasional Saturday.
- Water source will be existing bore PB1.
- Water efficiency: Process water will be recovered from the fines dam and recycled through the washing plant. - The wash plant water demand is 4.1kL/min – with a typical make-up demand of 6,630kL per year.

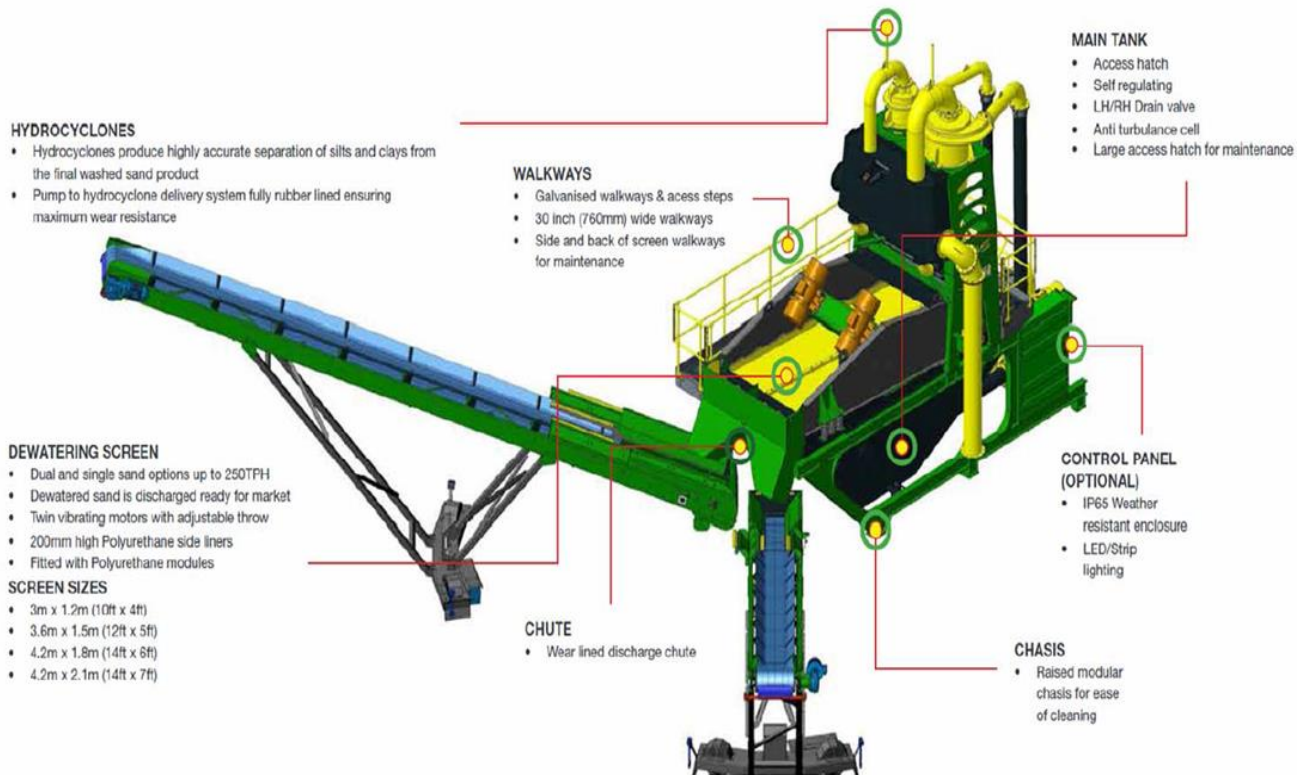


Figure 1: Indicative layout of proposed wash plant.



Figure 2: Indicative layout of proposed rinser.

Sedimentation pond

Holcim proposes to implement a sedimentation pond at the Jandabup Sand Quarry for the collection of water from the washing plant as outlined below;

- The Licence Holder proposes that the sediment pond will be designed to withstand a 1 in 100 year, 72 hour rain event and will not exceed a total area of 800 m².
- The depth of the sediment pond will not exceed 2 m and is expected to have the capacity to store 900 kL of wastewater.
- The pond will have a 1.5mm thickness HDPE liner, which will extend across the pond and over the embankments. The pond embankments will be covered by the 1.5mm thickness HDPE liner.
- Accumulated sediment in the pond will be removed every three months or as required by a submersible slurry pump located in the wedge pit. The sediment will be pumped via a short pipeline to a GeoPro desludging bag located on a small bunded desludging pad located next to the wedge pit that will be lined with 1.5mm thickness HDPE. The desludging pad housing the GeoPro bag will be on an incline to drain any water filtered from the bag back to the wedge pit. The pad's bunds will be 150mm high and be covered with the 1.5mm thickness HPDE liner. The GeoPro desludging bag will be emptied and removed from site when it is at full capacity.
- A perimeter protection berm has been proposed to surround the sediment pond and the outer embankments to prevent the risk of overflow and to maintain structural integrity and add additional freeboard.
- Recovered water from the pond will be returned to the washing plant for reuse.

The indicative layout for the sediment pond with wedge pits and GeoPro desludging bag is shown in Figure 3 below.

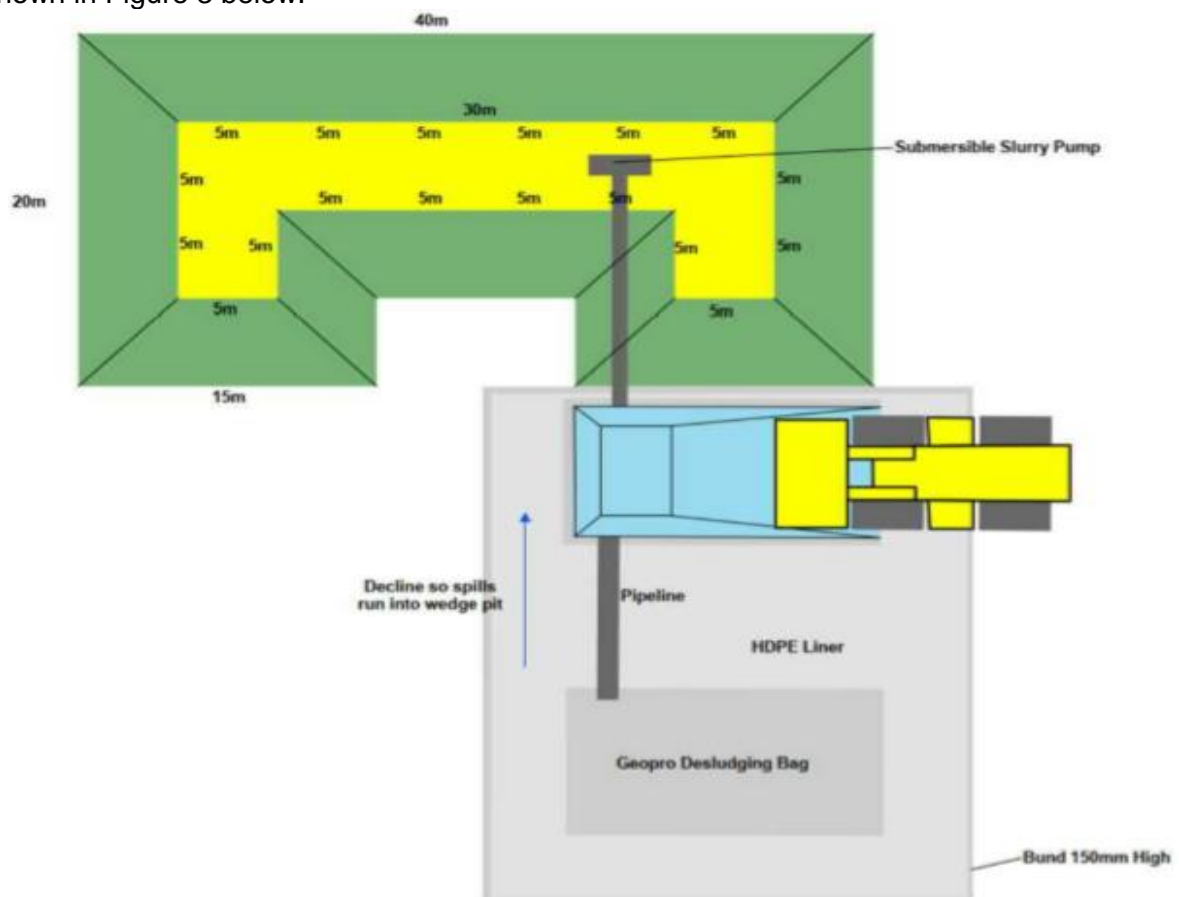


Figure 3: Layout of sedimentation pond with wedge pit and GeoPro desludging bag.

Noise assessment

Noise modelling was conducted to assess the cumulative noise levels from sand extraction, processing activities, inclusive of the proposed wash plant/rinser and noise emissions from two neighbouring extraction industries. Noise modelling represents worst case noise exposure received at sensitive receptors where two front end loaders and a truck closest to the Premises boundary nearest to the sensitive receptor. Results were based on equipment operating continuously and simultaneously. The location of the proposed wash plant/rinser to sensitive receptors is shown below in Figure 4.

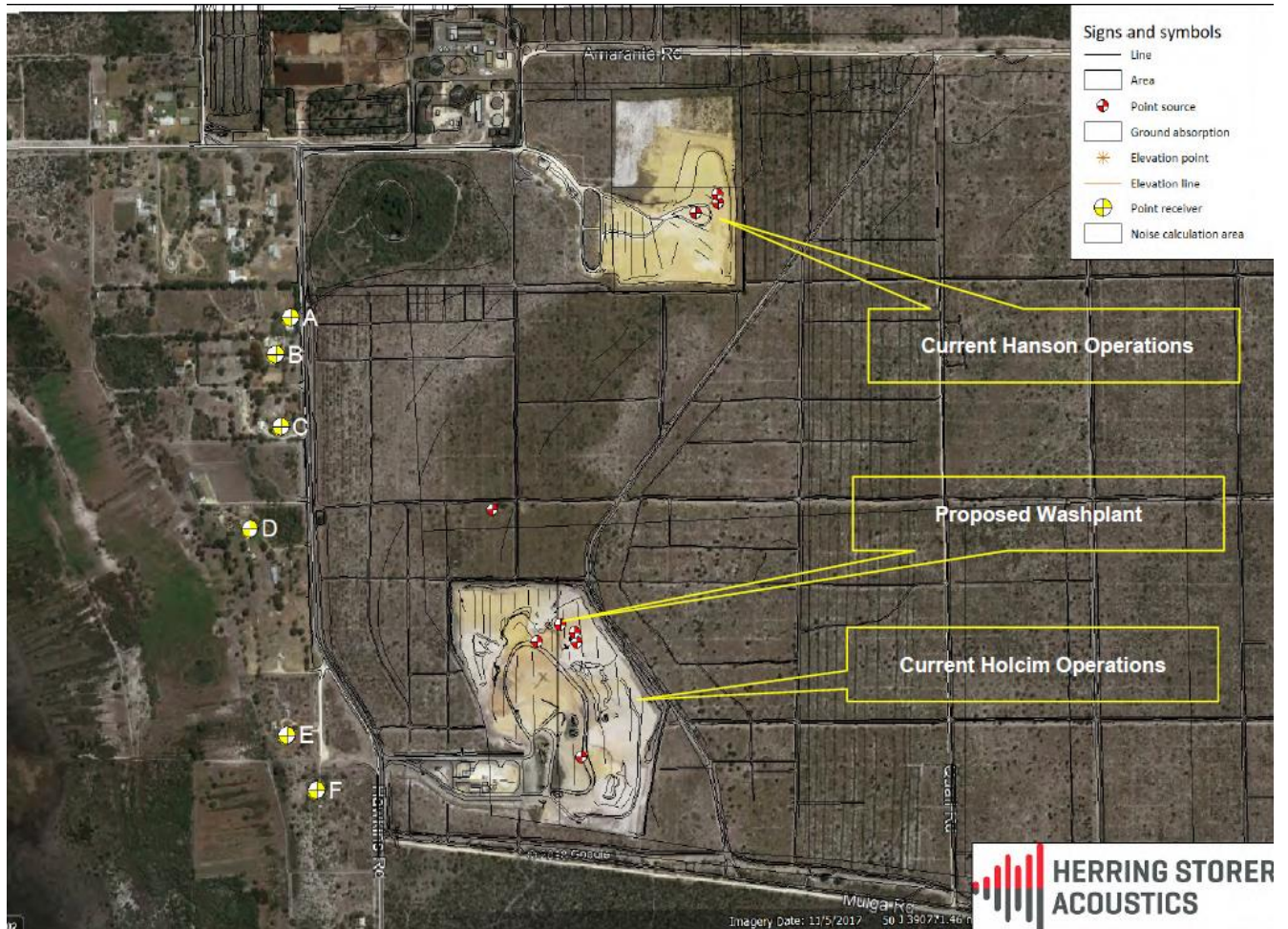


Figure 2: Location of sensitive receptors in relation to the wash plant

Predicted noise levels received at the sensitive receptors were assessed to be 43 dB. All predicted noise levels are at least 5 dB below the assigned night L_{A10} noise level (Table 2). The addition of the wash plant/rinser is not expected to significantly contribute¹ to noise emissions received at the receptors.

Table 2: Predicted noise emissions received at receptors

Noise Receptor	Predicted noise emission (dB) ¹	Assigned L _{A10} noise level (dB)
A	40	45
B	39	
C	39	
D	38	
E	41	
F	43	

Note 1: Predicted noise levels are inclusive of the 5 dB influencing factor for tonality to determine significance of contribution to the cumulative noise from the Premises.

Other approvals

The Premises is located on Mining Tenements M70/1248 and M70/1250 and exempt from planning approval under the City of Wanneroo Planning Scheme. The primary approval is pursuant to the *Mining Act 1978 (WA)*. The Quarry is situated on the Gngangara Groundwater Mound within the Gngangara Underground Water Pollution Control Area and is recognised as a priority 1 Public Drinking Water Source Protection Area where the Department of Mines Industry Regulation and Safety (DMIRS) will regulate via tenement conditions to ensure the groundwater is protected to the requirements of DWER.

Table 3: Relevant approvals

Legislation	Number	Approval
<i>Mining Act 1978 (WA)</i> (DMIRS)	Registration ID: 57769 Mining Tenement conditions.	Approval for Mining Proposal with a Mine Closure Plan, Holcim Hawkins Road Sand Quarry Jandabup on M70/1248 and M70/1250.
CAWS Act 1947 (WA) Gngangara Mound Public Drinking Water Source area. (DWER)	Registration ID: 57769 Water Management Plan dated 26 June 2019.	Holcim (Australia) Pty Ltd, Jandabup Sand Quarry revised Mining Proposal and Water Management Plan – M70/1124 and M70/1250.
EP Act 1986 (WA) (delegated to DMIRS)	Native Vegetation Clearing Permit number 6656/1 Expires 31/03/2026 File Number A1415/201501	Approval to clear 409.5 Ha of native vegetation within M70/1248 and M70/1250.

¹ Noise levels that exceed a value that is 5 dB below the assigned noise level are determined to significantly contribute to noise exceedances at noise receptors in accordance with the Noise Regulations.

Amendment history

Table 4 provides the amendment history for L8986/2016/1.

Table 4: Licence amendments

Instrument	Issued	Amendment
L8986/2016/1	5/09/2016	New Licence issued to Holcim to operate the Jandabup Premises with 16 year 7 month tenure expiring on 14 February 2033 (mining tenement tenure).
L8986/2016/1	12/01/2018	Amendment Notice 2 alter the air monitoring conditions to remove location 2, alter annual period and report due dates.
L8986/2016/1	11/09/2019	Amendment Notice 3 to include a new wash plant and sedimentation pond

Location and receptors

Table 5 below lists the relevant sensitive land uses in the vicinity of the Premises which may be receptors relevant to the proposed amendment.

Table 5: Receptors and distance from activity boundary

Residential receptors	Distance from Premises
Residential premises – (zoned residential)	Within 300 m west of the wash plant/rinser. This is a buffer exclusion zone recommended for sand mining within EPA <i>Guidance Statement Number 3: Separation distances between industrial and sensitive land uses.</i>
General rural landholding (zoned general rural)	Located greater than 500 m west and within 1000 m south of the prescribed activity boundary.

Table 6 below lists the relevant environmental receptors in the vicinity of the Premises which may be receptors relevant to the proposed amendment.

Table 6: Environmental receptors and distance from activity boundary

Environmental receptors	Distance from wash plant/rinser
Gnangara Groundwater Area	The Premises is located in the Jandabup and Wanneroo wellfield subarea.
Public Drinking Water Source Areas (PDWSA's)	The Premises is located in the Gnangara Underground Water Pollution Control Area.
Well Head Protection Zones (WHPZ) for PDWSA's Bores W240,W230,250,W255,W257,W260,W270,W275.	Wash plant/rinser is located within 60m of two WHPZ's.
Bushforever site (324 and 326)	500 m south and 650 m west of the wash plant/rinser.
Threatened Ecological Communities Banksia dominated woodlands of the Swan Coastal Plain Priority 3 (Endangered).	300 m north west of wash plant/rinser. 300 m south of wash plant/rinser.
Threatened Fauna <i>Isoodon fusciventer</i> (Priority 4). <i>Calyptorhynchus latirostris</i> (Endangered)	within 650 m south west of wash plant/rinser. within 650 north west of wash plant/rinser.
Jandabup Lake	735 m south west of wash plant/rinser.

Risk assessment

Table 7 below describes the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. The table identifies whether noise and dust emissions present a material risk to public health or the environment, requiring regulatory controls.

Table 7: Risk assessment for proposed amendment during operation

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
Category 12 Screening etc. of material: Operation of wash plant and rinser	Dust: fugitive dust generated from operating wash plant and rinser.	Nearby Residents: Located within 300 m west of the wash plant/rinser	Air: wind dispersion	Health and amenity impacts	Slight	Rare	Low	The washing of raw sands via the wash plant and rinser is a wet process and washed sand is unlikely to generate dust. Small amounts of dust may be generated at the rinser feed. Water carts have been proposed to suppress potential dust generated. Water Sprays will be used when feeding material into the wash plant/rinser. Minimal on site impacts would only occur in exceptional circumstances, therefore impacts to receptors are not expected.
	Noise: generated from operating the wash plant and rinser.				Minor	Rare	Low	Noise emissions from the wash plant will have minimal off-site impacts to receptors, which may occur in exceptional circumstances. The additional noise source from the wash plant/rinser is not expected to contribute significantly to the cumulated noise levels received at receptors. Modelled cumulative noise levels indicate that the compliance with the Noise Regulations can be maintained. The wash plant/rinser is proposed to be operated within the quarry with a pit face height and or perimeter bund of 3 m extending across the western premises boundary, minimising noise received at receptors.
Discharge of waste fines slurry and wastewater to the sediment pond.	Wastewater: contamination of groundwater resources from sediments found within the sediment pond.	Groundwater: Gnangara Groundwater Area Public Drinking Water Source Areas (PDWSA's) Well Head Protection	Seepage to groundwater resource from the sediment pond.	Contamination of groundwater resources – public drinking water source.	Minor	Unlikely	Medium	Seepage of wastewater through the 1.5mm HDPE liner presents the risk of low level impact to groundwater resources. The Licence Holder proposes to recover wastewater from the sediment pond to reuse in washing activities. It is anticipated that minimal wastewater will be stored in the sediment pond for the planned sand washing activities. Impact to groundwater is unlikely to occur in most

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
		Zones						<p>circumstances.</p> <p>Accumulated sediment in the sedimentation pond is proposed to be removed every three months or as required. It will be pumped to a GeoPro desludging bag. Water filtering from the desludging bag will drained to the wedge pit. The GeoPro desludging bag will be emptied and removed from site (disposed off-site to a licensed facility) when it is at full capacity.</p>
	<p>Wastewater: Overflow of wastewater from the sediment pond impacting sensitive environmental receptors.</p>	<p>Terrestrial ecosystems: Bushforever site Threatened Ecological Communities Threatened Fauna</p> <p>Surface waters: Lake Jandabup</p>	<p>Overland flow of wastewater from the sediment pond.</p>	<p>Wastewater containing sediments and other particulates can increase suspended solids resulting in turbidity and sedimentation in surface waters.</p> <p>Overflow of wastewater with increased sediments can inundate terrestrial systems with water and sediments having adverse impacts on terrestrial ecosystems.</p>	Minor	Rare	Low	<p>The potential of wastewater overflowing from the sediment pond presents low level impacts to terrestrial ecosystems which may occur in exceptional circumstances.</p> <p>It is proposed that minimal wastewater will be stored within the sediment pond, recycled to wash plant/rinser.</p> <p>A minimum freeboard of 400 mm is proposed including a perimeter protection berm to surround the sediment pond for additional freeboard.</p> <p>A perimeter protection berm on the outer-embankments is proposed to provide structural integrity to pond walls to prevent an overflow event.</p>

Decision

Subject to additional conditions applied through this Notice to reduce the potential risk of wastewater discharge and accumulated sediments impacting environmental receptors, the Delegated Officer has determined that the wash plant and rinser infrastructure may be installed and operated at the Premises.

Fugitive dust emissions and noise generated from the operation of the new wash plant/rinser are not expected to result in adverse impacts to the sensitive receptors and no conditions relating to dust and or noise emissions have been applied to the Existing Licence.

Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 9 May 2019 and on 16/08/2019. Comments received from the Licence Holder have been considered by the Delegated Officer as shown in Appendix 2.

Amendment

Infrastructure and equipment

1. The Licence is amended with the addition of Condition 1.2.

1.2 Wash plant, Rinser and sedimentation pond

1.2.1 The Licence Holder must install and undertake the Works for the infrastructure and equipment, to the requirements and at the location specified in Table 1.2.1.

Infrastructure /Equipment	Requirements (design and construction)	Site plan reference
Wash plant and rinser	Install a McCloskey Washing System CSP 120 and McCloskey S190 Rinser or equivalent with a maximum design capacity not exceeding 120 tonnes of washed sand per hour.	At the location depicted in Figure 2 of Schedule 1.
Sedimentation Pond	<p>The sedimentation pond must be constructed:</p> <ul style="list-style-type: none">to withstand a 1 in 100 year, 72 hour rain event;not to exceed a total footprint area of 800 m²;not to exceed a depth of 2m below pit floor level;the sides of the sediment pond will have a slope of 1:2.5 (H:V);with a 1.5mm HDPE liner that extends across the pond and over the embankments with a permeability of 1x10⁻⁹ m/s;with a perimeter protection berm that is 0.5m high, with a 1m crest width and 1.25m side slopes that surround the pond;with outer-embankments that manage erosion;with a storage capacity that does not exceed 900kL;with a lined wedge pit and desludging bag to capture and store water before discharging to the sedimentation pond; andwith pipework that is sealed and free from leaks to transport wastewater.	

- 1.2.2 *Subject to Condition 1.2.1, within 30 days of the completion of the Works specified in Table 1.2.1, the Licence Holder must provide to the CEO a report from an engineer or equivalent professional confirming that the requirements specified in Table 1.2.1 has been constructed with no material defects.*
- 1.2.3 *Subject to Condition 1.2.2 the Licence Holder is authorised to operate the equipment and infrastructure specified in Table 1.2.1 in accordance with the Conditions of this Licence.*
- 1.2.4 *The Licence Holder must ensure that only wastewater from the wash plant, rinser and desludging bag is discharged to the sedimentation pond.*
- 1.2.5 *The Licence Holder must clean out accumulated sediment from the sedimentation pond at least once every three months.*
- 1.2.6 *The Licence Holder must dispose of the waste sediment in the desludging bag to a licensed facility that accepts that waste.*
- 1.2.7 *The Licence Holder must not cause or allow the discharge of wastewater from the sedimentation pond to land.*

- 2. Schedule 1 of the licence is amended by the insertion of an additional map showing the location of the wash plant/rinser and sedimentation pond (Figure 2). The insertion of captions and amendments to explanatory text are shown in underline red text and the deletion of the text shown in red strikethrough.

Schedule 1: Maps

Premises map and map of monitoring locations

The Premises is shown in the maps below. The red line depicts the Premises boundary. The location of the monitoring point listed in Table 3.2.2 are shown Figure 1 below.

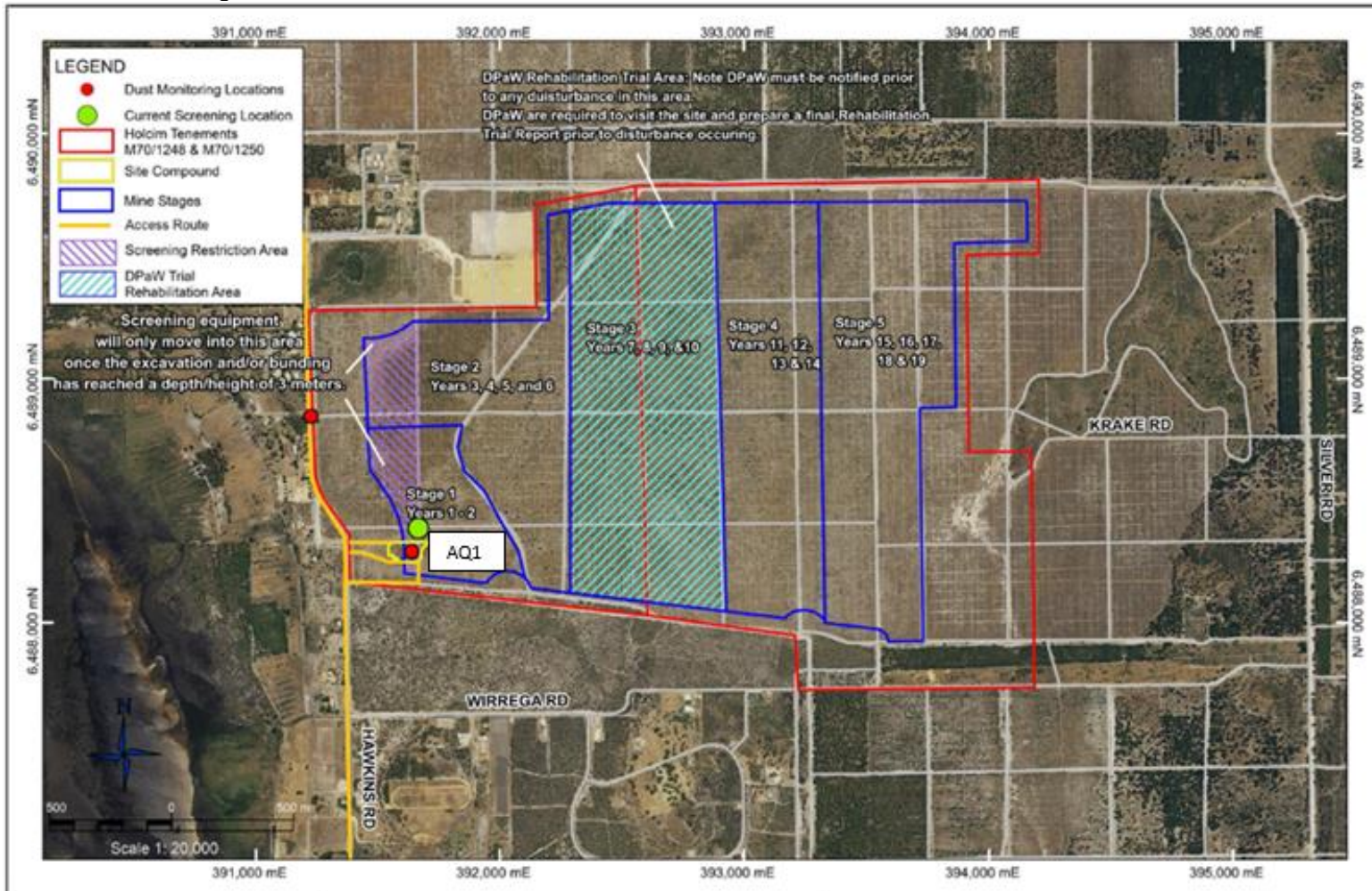


Figure 1: Premises map and monitoring locations.

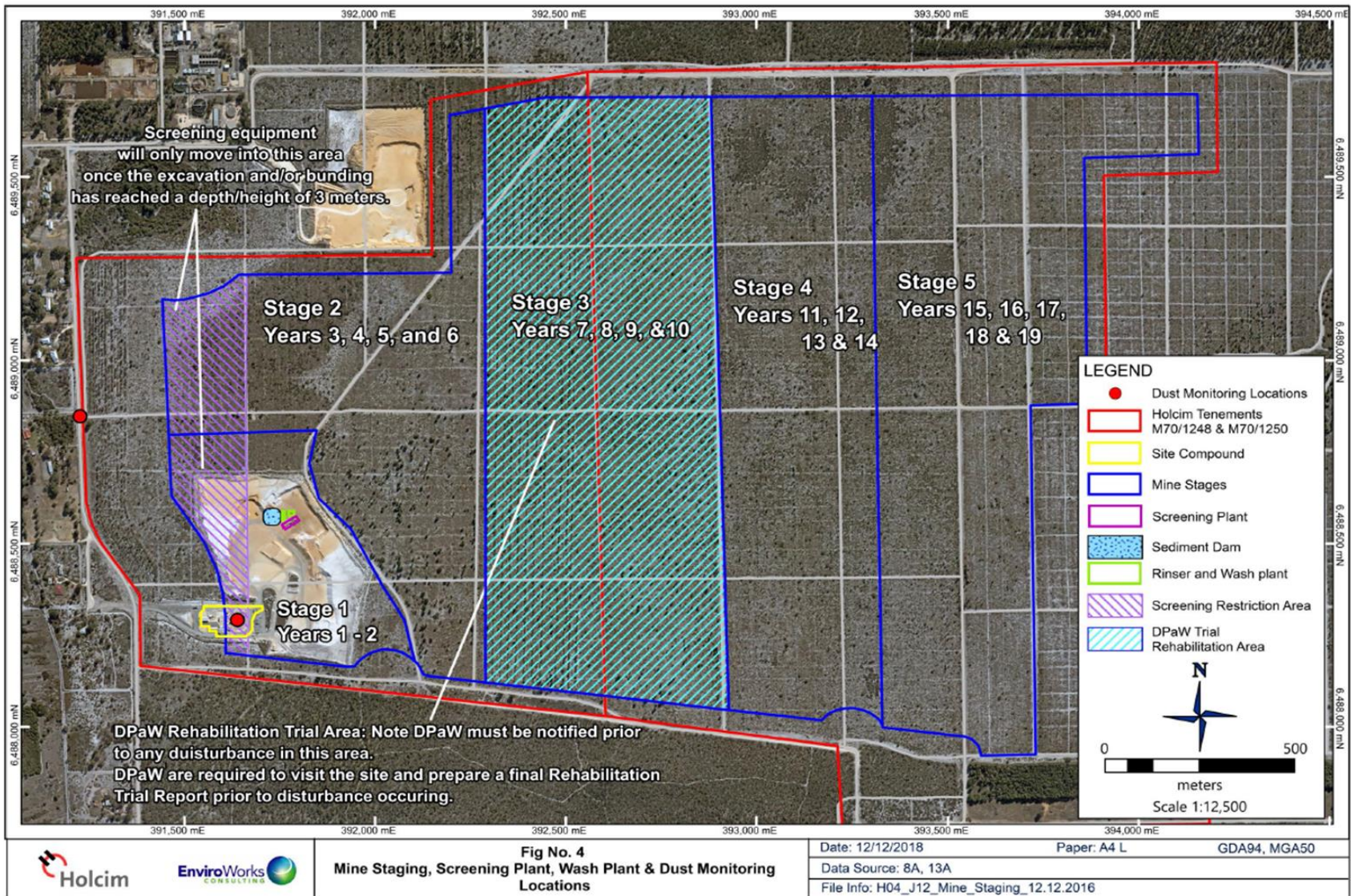


Figure 2: Premises map indicating the location of the wash plant/rinser and sedimentation pond.

Appendix 1: Key documents

	Document title	Availability
1	Licence L8986/2016/1 and Amendment Notice 2 – Holcim (Australia) Pty Ltd.	Accessed at www.der.wa.gov.au
2	Application for amendment of Licence L8986/2016/1 dated 24 December 2018.	DWER record A1752481 - Att 1
3	Supporting documentation to the application to amend Licence L8986/2016/1 dated 24 December 2018	DWER record A1752481 - Att 2
4	Response to request for further information received by DWER 18 April 2019.	DWER record A1782839
5	Licence Holder comments to draft amendment notice – Details on new pond lining and desludging bag dated 30 May 2019	DWER record A1793129
6	Environmental Protection Authority, <i>Guidance Statement Number 3: Separation distances between industrial and sensitive land uses.</i>	Accessed at http://www.epa.wa.gov.au
7	Jandabup Sand Quarry Project Water Management Plan prepared by AECOM for Holcim (Australia) Pty Ltd dated 26 June 2019	DWER record A1810630
8	DER, July 2015. <i>Guidance Statement: Regulatory principles.</i> Department of Environment Regulation, Perth.	accessed at www.der.wa.gov.au
9	DER, October 2015. <i>Guidance Statement: Setting conditions.</i> Department of Environment Regulation, Perth.	
10	DER, November 2016. <i>Guidance Statement: Environmental Siting.</i> Department of Environment Regulation, Perth.	
11	DER, November 2017. <i>Guidance Statement: Risk Assessments.</i> Department of Environment Regulation, Perth.	
12	DER, November 2017. <i>Guidance Statement: Decision Making.</i> Department of Environment Regulation, Perth.	

Appendix 2: Summary of Licence Holder comments

The Licence Holder was provided with the draft Amendment Notice on 9 May 2019 and 16/08/2019 for review and comment. The Licence Holder responded on 30 May and 6 September 2019. Comments submitted in May resulted in a full review and reassessment of the project as a desludging bag was introduced to the infrastructure. The September response waiving the remaining comment period.

Condition	Summary of Licence Holder comment	DER response
1.2.1 30/5/2019	<p>Holcim proposes to implement a sedimentation pond at the Jandabup Sand Quarry for the collection of water from the washing plant by constructing a clay liner with 100mm of sand cover.</p> <p>Following discussions with Water Corporation and DWER the sedimentation pond design was amended to include a 1.5mm thickness HDPE liner, which will extend across the pond and over the embankments and includes an area for a desludging bag.</p> <p>Sediment from within the pond will be pumped to a GeoPro desludging bag located next to the wedge pit and will be removed from site once full and disposed to landfill.</p>	<p>The change of liner and treatment of sediment or sludge was accepted as an amendment to the Application resulting in a reassessment of the risks.</p> <p>The final approved version of the Water Management Plan was provided on 26 June 2019.</p> <p>A revised risk assessment was prepared and presented to the Applicant.</p>
6/9/2019	No Comment	N/A