

TIMOR LIMESTONE QUARRY

ANNUAL ENVIRONMENTAL MANAGEMENT REPORT 2021

Prepared by:

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DISTRIBUTION DETAILS

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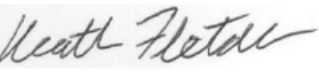
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TITLE DETAILS

Title Details	
Name of Mine	Timor Limestone Quarry
Mining Title / Leases	ML 1660
Expiry Date	23 November 2032
Name of Leaseholder	Stoneco Pty Ltd
Name of Mine Operator (if different)	N/A
Postal Address	PO Box 708 SCONE NSW 2337
Telephone/fax/email	Phone: 02 6545 2222 / Fax: 02 6545 2444
Land Ownership and Land Use Boundaries	
Landowner/Occupier	Stoneco Pty Ltd
Tenure	Freehold
Pre-mining land use	Agricultural Grazing
Consent and Licences	
Local Council Area	Upper Hunter Shire (UHS) Council
Development Consent	Development Consent (DA) 308/08
Do licences granted by other agencies apply to the mine activities?	EPA (EPL 13397) UHSC (DA308/08)
MOP and AEMR Period	
MOP Commencement Date	31 May 2014
Completion date (nominal)	31 December 2021
AEMR Start Date	1 January 2021
End date	31 December 2021
Signatures	
Leaseholder	Signature: 
	Name: Scott Murdoch
	Date: 31 st July 2022
Environmental Officer	Signature: 
	Name: Heath Fletcher
	Date: 31 st July 2022

1 BACKGROUND

This section provides a description of the Timor Quarry site and outlines the regulatory requirements for the AEMR.

1.1 SITE DESCRIPTION

Timor Limestone Quarry (Timor Quarry) is located 29 km east of Blandford in the Upper Hunter Shire Council area (UHSC) of NSW.

Operations are generally undertaken in accordance with Development Consent DA308/08, it's supporting Environmental Impact Statement (EIS) (R.W. Corkery & Co Pty Limited, 2008), Mining Lease (ML) 1660 (granted in November 2011) and EPL13397.

ML 1660 is located wholly within freehold land, principally owned by Stoneco Pty Ltd (Stoneco) (Lot 11 DP 1161503) and a smaller area owned by another private landholder (Lot 10 DP 1161503).

DA308/08 generally approves the following activities:

- Construction of a site access road and intersection with Timor-Crawney Road;
- Extraction of limestone from an identified 24 million tonne (Mt) resource for up to 30 years;
- Extraction is to occur within a nominated 4 ha extraction area via drill and blast methods at rates up to 100,000 tonnes per annum (tpa);
- Crushing and screening of limestone within the extraction area and/or plant area;
- Transportation of crushed product directly to customers or to a processing plant located in the Scone Business Park; and
- Rehabilitation.

Figure 1 illustrates the general layout of the site.

1.2 AEMR REQUIREMENTS

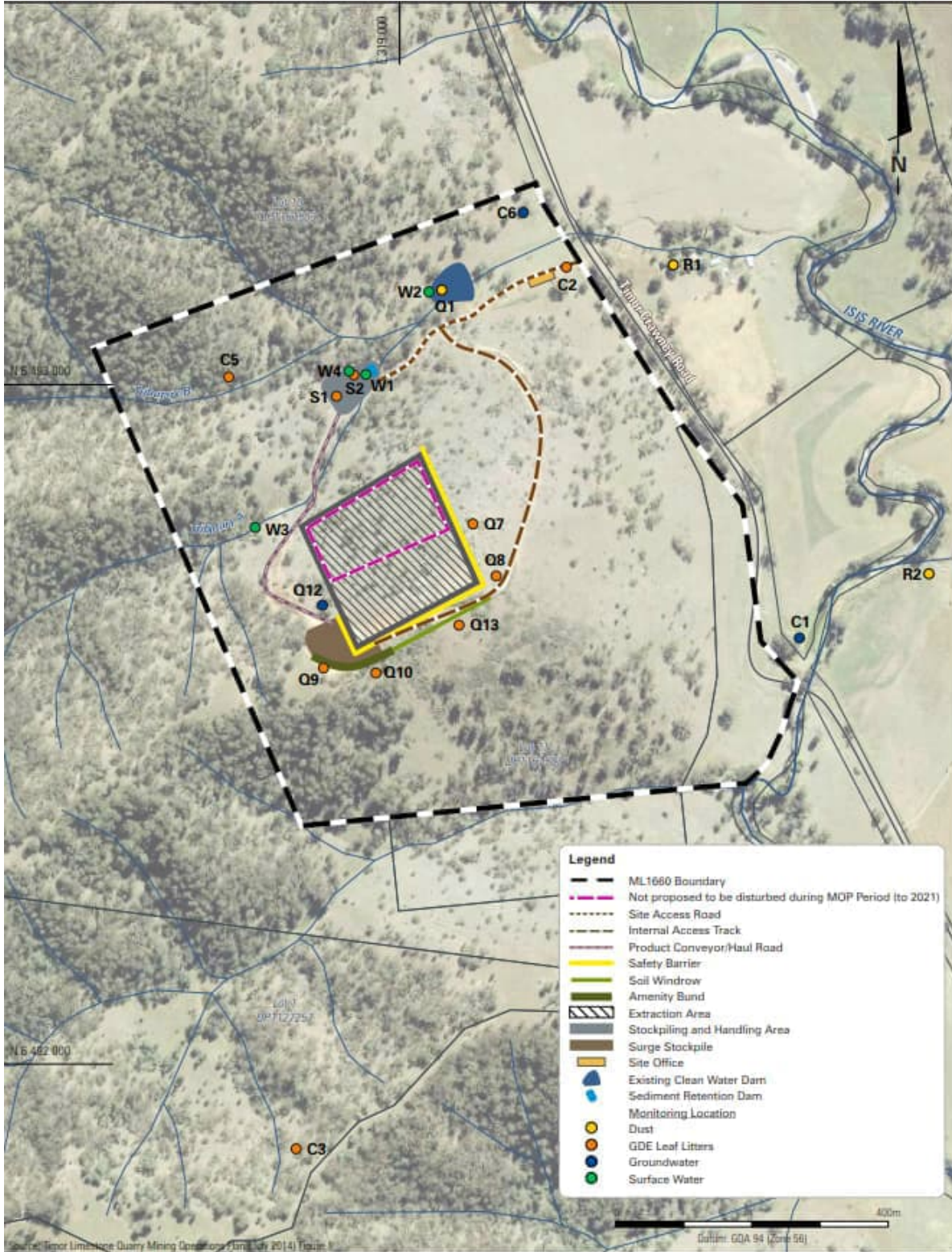
This Annual Environmental Management Report (AEMR) has been prepared generally in accordance with the document 'Investment - *Preparation of an Annual Environmental Management Report: Small Mine Version Guidelines*' (DRE, 2012). In addition, Timor Quarry's DA308/08 outlines several specific requirements to be included in the AEMR. These requirements, as well as where each is addressed in the AEMR are outlined in **Table 1**.

This AEMR has been prepared for the "Reporting Period" of 1 January 2020 to 31 December 2021.

Table 1
DA 308/08 AEMR Requirements

Description	Where Addressed
<p>S6.2 Annual Environmental Management Report</p> <p>At the end of each 12-month period calculated from the commencement of quarrying on the Project Site, the Applicant shall submit an AEMR to the relevant government agencies and to the satisfaction of the Council. This report must:</p>	<p>This Report</p>
(a) identify the standards and performance measures that apply to the development;	<p>Section 1.2 & Section 4</p>
(b) include a summary of the complaints received during the past year, and compare this to the complaints received in the previous 5 years;	<p>Section 5</p>
(c) include a summary of the monitoring results on the development during the past year;	<p>Section 4</p>
d) include a comprehensive review of these monitoring results against the relevant:	<p>-</p>
(i) limits/criteria in this consent;	<p>Section 4</p>
(ii) monitoring results from previous years; and	<p>Section 4</p>
(iii) relevant predictions in the EIS and Specialist Consultant Studies Compendium;	<p>Section 4</p>
(e) identify any trends in the monitoring results over the life of the development;	<p>Section 4</p>
(f) identify and discuss any non-compliance during the previous year; and describe what actions were, or are being, taken to ensure compliance. These actions may include proposed amendments of management plans, to be proposed, approved and implemented as specified in conditions S1.2.4, S1.2.5 and S1.2.6.	<p>Section 4</p>
(g) describe the works that were carried out in the past year, and the works that are proposed to be carried out over the next year; and	<p>Section 2</p>
(h) describe what measure will be implemented over the next year to improve the environmental performance of the approved operations; and	<p>Section 4 & Section 6</p>
(i) include the data, findings and recommendations referred to in conditions S1.12.11 and S1.12.12, and confirm the action taken by the quarry owner to implement those recommendations, as required by condition S1.12.15.	<p>N/A</p>

Figure 1
Timor Limestone Quarry Site Layout



TIMOR LIMESTONE QUARRY

Timor Limestone Quarry Site Layout

1.3 REGULATORY CONSULTATION

Timor Quarry operates in accordance with the Mining Operations Plan (MOP) and the following approved management plans:

- Groundwater Dependant Ecosystem Sampling Protocol;
- Air Quality Management Plan;
- Biodiversity Management Plan;
- Mine Rehabilitation Closure Plan; and
- Mine Closure Plan.

This AEMR has been prepared in accordance with the requirements outlined in **Section 1.2**.

2 MINING OPERATIONS DURING THE REPORTING PERIOD

This section details the production, waste and rehabilitation activities at the Timor Quarry during the Reporting Period.

2.1 SUMMARY

Stoneco indicates work on site commenced on 1 July 2011, with the first extraction undertaken 5 September 2014.

A brief description of operations during the Reporting Period is as follows:

- No land clearing occurred during this period.
- Ore extraction during this period is within the defined extraction area.
- Increased confidence in the agricultural industry will likely drive demand thru 2022.
- Three to four staff on site.

Table 2 outlines the production and waste summary to date.

[REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]			
		[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]		[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]		[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]		[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]		[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]		[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]		[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

2.2 REHABILITATION

There was no rehabilitation required during the reporting period.

2.3 FURTHER DEVELOPMENT OF THE REHABILITATION PLAN

Table 3 provides the rehabilitation summary and Error! Reference source not found. outlines maintenance activities on rehabilitated land.

Table 3
Rehabilitation Summary

	Cumulative Area Affected (hectares)		
	To date	Last Report	Next Report (Estimated)
A: MINE LEASE AREA	58.64	Unchanged	Unchanged
B: DISTURBED AREAS			
B1 Infrastructure area other disturbed areas to be rehabilitated at closure including facilities, roads	0.55	0.55	0.55
B2: Active Mining Area excluding items B3 - B5 below	1.55	1.55	1.55
B3 Waste emplacements, active/unshaped/in or out-of-pit	0	0	0
B4 Tailings emplacements, active/unshaped/uncapped	0	0	0
B5 Shaped waste emplacement (awaits final vegetation)	0	0	0
ALL DISTURBED AREAS	2.10	2.10	2.10
C: REHABILITATION PROGRESS			
C1 Total Rehabilitated area (except for maintenance)	Nil Rehab – Operational Area	Nil Rehab – Operational Area	Trial section planned on Back ramp final landform area
DC: REHABILITATION ON SLOPES			
D1 10 to 18 degrees	0	0	0
D2 Greater than 18 degrees	0	0	0
E: SURFACE OF REHABILITATED LAND			
E1 Pasture and grasses	0	0	0
E2 Native forest/ecosystems	0	0	0
E3 Plantations and crops	0	0	0
E4 Other (include non-vegetative outcomes)	Note period of Higher-than-average rainfall 2021 Excellent growing season	Note period of very above average dry period 2020	Higher than average rainfall predicted 2022

N/A - Not applicable, site in construction phase.

Table 4
Maintenance Activities on Rehabilitated Land

Nature of Treatment	Area Treated (hectares)		Comment/control strategies/ treatment detail
	Report period	Next period	
Additional erosion control works (drains re-contouring, rock protection)	Operational	Ongoing	Placing rip rap in drains to reduce turbidity as required
Re-covering (detail - further topsoil, subsoil sealing, etc.)	Nil	Trial section back ramp	Re-soil and re-seed is planned for 2022
Soil treatment (detail - fertiliser, lime, gypsum etc.)	Nil	250m ²	Use of onsite topsoil
Treatment/Management (detail - grazing, cropping, slashing etc.)	Nil	Operations	No Grazing or cropping planned
Re-seeding/Replanting (detail - species density, season etc.)	nil	250m ²	Growing of Native Seeds in nursery for planned planting 2021 Success of earlier seedlings to be supported and further seedling planting being planned Spring 2022. Use of older seed stock to improve chances of survival planned
Adversely Affected by Weeds (detail - type and treatment)	no	Planned	Operational spraying of weeds completed by Stoneco with further target spaying of blackberry planned for summer. Spring 2022 spraying planned too. Pending weather conditions
Feral animal control (detail - additional fencing, trapping, baiting etc.)	Nil	Nil	Site Management Adaptive

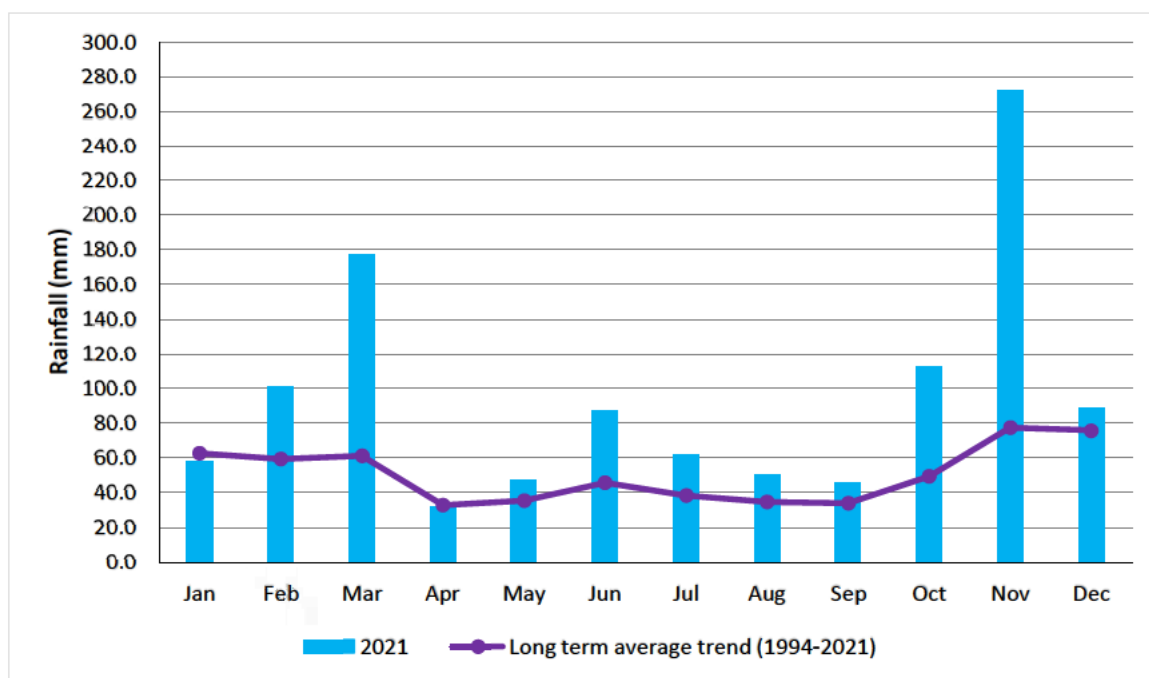
3 METEOROLOGICAL DATA

3.1 RAINFALL

A rain gauge was installed in the Plant area (SHA) in May 2016. The rain gauge is a Nylex 250mm. Rainfall data is incorporated in the monthly reports. **Figure 2** presents the 2021 monthly rainfall.

A comparison of 2021 monthly rainfall is displayed against the long-term average in **Figure 2**. A total of 1,133.8 mm of rainfall was recorded in 2021, much higher than the long-term average of 607.4mm (at the Scone Airport AWS). The highest monthly rainfall (272.0 mm) was recorded in November. There were nine other months with a higher-than-average rainfall during 2021.

Figure 2
Monthly Rainfall 2021



*Long term average Scone AWS

3.2 TEMPERATURE

Monthly minimum and maximum temperatures, recorded in 2021 at the Scone Airport AWS are shown in **Table 5**, together with historic averages. The temperatures are typical of a temperate climate, with warmer summer months December to March and cooler winter months from June to August.

The monthly average minimum and maximum temperatures for 2020 were 9.8°C and 23.6°C, respectively. Temperatures recorded in 2021 are comparable with those experienced historically.

Table 5
Monthly Temperatures 2021

Month	Monthly Minimum Temperature (°C)	Historic Average* Minimum (°C)	Monthly Maximum Temperature (°C)	Historic Average* Maximum (°C)
January	15.7	17.2	29.9	31.8
February	16.5	16.6	28.5	30.6
March	14.9	14.4	26.8	28.0
April	7.9	10.1	23.9	24.6
May	6.2	6.6	20.5	20.4
June	5.1	4.8	17.1	17.0
July	4.0	3.4	19.0	16.7
August	4.0	3.6	16.9	18.8
September	5.3	6.7	22.6	22.3
October	9.5	9.6	25.0	25.4
November	13.5	13.1	24.5	28.1
December	15.2	15.4	28.9	30.3
Average	9.8	10.1	23.6	24.5

*Scone Airport AWS from 1991.

4 ENVIRONMENTAL PERFORMANCE

This section outlines the key environmental control and monitoring strategies in place at Timor Quarry. The locations of monitoring points referred to in this section are shown on

Figure 1.

4.1 SURFACE WATER

4.1.1 Background

Stoneco has developed a Soil and Water Management Plan (SWMP) in accordance with DA 308/08. The SWMP describes the surface water management infrastructure and environmental procedures in place at Timor Quarry including the:

- Surface water monitoring program; and
- Erosion and sediment control.

The requirement to monitor surface water quality is also contained in DA 308/08 Condition S1.11.1 which requires Stoneco to regularly monitor “..*surface water quality upstream and downstream of the development...*”

Timor Quarry’s surface water monitoring locations are shown on

Figure 1 and include:

- One monitoring location on Tributary A, 100 m west of the dam (W1);
- One monitoring location at the Dam (W2);
- One monitoring location on Tributary A (W3), 200 m west of the dam; and
- One monitoring location in the sediment basin of the Plant area (W4).

The sediment basin was constructed with the 'Blue Book' specification type D/F, in accordance with Timor Soil Water Management Plan 3.4.5 {Sediment Retention}.

4.1.2 EIS Predictions

Section 4.2.5 of the EIS concludes "*the proposal would be unlikely to significantly impact on surface water quality or availability to landholders downstream of the Project Site or environmental flows within the local water courses.*"

The EIS outlines the following key parameters to be analysed in surface water samples:

- Total Suspended Solids (goal: <50mg/L);
- Electrical Conductivity (goal: <1500 µS/cm);
- Biochemical Oxygen Demand (goal: <20mg/L);
- pH (goal: between 6.5 and 8.5); and
- Oil and Grease (goal: <10mg/L).

4.1.3 Long Term Baseline

Surface water baseline data was collected from three sampling events conducted from March 2011 to July 2014. The results indicate that one sample was collected from each surface water monitoring location during this period (refer to **Table 6**). The monitoring locations were noted as dry or with algae present during the other sampling occasions. It is noted that Biochemical Oxygen Demand (BOD) in the baseline sample for W1 is 24 mg / L, which is 4 mg / L above the relevant criteria of 20 mg / L. This can be expected as all surface water sampling locations are stagnant and not running water.

4.1.4 Monitoring Results for Reporting Period

Table 6 outlines the surface water monitoring results for all samples from April 2015. Seven surface water samples were collected and analysed during the Reporting Period. Stoneco has advised there were no breaches of internal sediment controls during the Reporting Period. Non-compliance with discharge criteria was not observed during 2021.

4.1.5 Summary

There no exceedances of during the reporting period.

4.1.6 Further Actions

Maintenance to the sediment management strategies will be continued during the next Reporting Period.

- removal of built up sediment within the sediment basin to increase basin capacity; and
- maintenance of rock lined drains.

The strategy may also include the use of riprap on slopes and maintenance of sediment channels.

Table 6
Surface Water Monitoring Results

Location	Pollutant	Discharge Criteria**	Monitoring Period								
			Baseline^	2015 - 2018	Jan 2019	Oct 2019	Jan-Feb 2020	Jun 2020	Oct-Nov 2020	Mar-Apr 2021	Oct 2021
W1	EC (µS / cm)	1,500	310	Data is presented in Appendix B	283	NS	NS	301	256	274	NS
	Total suspended solids (mg / L)	50	16		1200@	NS	NS	NS	12	2	NS
	pH	6.5 – 8.5	6.9		7.5	NS	NS	8.3	7.9	8.4	NS
	BOD (mg / L)	20	24		15	NS	NS	2	<2	<2	NS
W2	EC (µS / cm)	1,500	216		296	NS	248	276	NS	252	221
	Total suspended solids (mg / L)	50	12		26	NS	114@	NS	NS	8	39
	pH	6.5 – 8.5	7.0		7.7	NS	8.1	8.0	NS	7.9	8.0
	BOD (mg / L)	20	2		5	NS	5	3	NS	<2	<2
W3	EC (µS / cm)	1,500	285		147	NS	681	284	267	287	483
	Total suspended solids (mg / L)	50	29		34	NS	7	NS	8	8	4
	pH	6.5 – 8.5	7.5		7.2	NS	7.6	8.1	8.0	8.0	7.8
	BOD (mg / L)	20	2		6	NS	2	<2	3	3	<2

^Results of single sample taken at W1, W2 and W3 between March 2011 and November 2014, provided by Stoneco

NS – Not sampled due to area being dry

@Rain occurring during sampling

**Development Consent DA308/08 Condition S1.11.1

4.2 GROUNDWATER

4.2.1 Background

The management of groundwater forms part of the Soil and Water Management Plan, in accordance with DA 308/08. This Plan describes the groundwater monitoring procedures in place at Timor Quarry. In addition, a Groundwater Dependant Ecosystem (GDE) Sampling Protocol has been developed and implemented.

Timor Quarry's groundwater monitoring locations are shown on

Figure 1 and include:

- C1 offsite near Isis River;
- C6 at the north-east end of the site; and
- Q13 adjacent to the extraction area.

4.2.2 EIS Predictions

Section 4.3.5 of the EIS states *“Considering the location of the proposed extraction area at the top of a ridge and, based on the available groundwater data and knowledge, it is considered that the extraction area is highly unlikely to intersect significant quantities of groundwater.”*

The EIS states that no groundwater dependant ecosystems have been identified and concludes in that *“no specific groundwater monitoring is considered necessary.”*

4.2.3 Long Term Baseline

Baseline groundwater quality was determined through samples collected from May 2011 to April 2014 and is presented in **Table 7**. Continuous monitoring of groundwater depth, electrical conductivity and temperature commenced in June 2014 at borehole locations C1 and C6.

4.2.4 Monitoring Results

Table 7 outlines the groundwater monitoring results for all samples collected from April 2015 to December 2021. The table compares the results to the relevant criteria and baseline.

Table 7
Groundwater Monitoring Results

Bore	Pollutant	Criteria*	Date of Monitoring					
			Baseline**	2015 to 2019	Jun 2020	Nov 2020	Apr 2021	Dec 2021
C1	EC (µS / cm)	1,500	537 - 603	Data is presented in Appendix B	653	620	624	616
	pH	6.5 - 8.5	7.1 - 7.4		7.4	7.3	7.2	7.3
	DO (mg / L)	*	5.8 – 13.5		11.2	7.5	7.7	7.5
	GDE (150 µm)	N/A	None		None	None	None	CP#
	GDE (50 µm)	N/A	None		CP^	None	None	CP#
C6	EC (µS / cm)	1,500	508 – 1,065		651	566	565	582
	pH	6.5 - 8.5	7.3 - 7.4		NS	7.3	7.3	6.8
	DO (mg / L)	*	8.0 - 9.4		NS	6.5	6.9	3.7
	GDE (150 µm)	N/A	None		None	None	CP*	None
	GDE (50 µm)	N/A	None		None	None	None	None
Q13	EC (µS / cm)	1,500	NS		NS	502	476	502
	pH	6.5 - 8.5	NS		7.4	7.2	7.5	7.3
	DO (mg / L)	*	NS		10.5	7.5	8.3	7.7
	GDE (150 µm)	N/A	NS		None	None	None	None
	GDE (50 µm)	N/A	NS		CP^	None	O*	None

NS – Not sampled due to bore being dry

N/A - Not Applicable

* Soil and Water Management Plan- Dissolved Oxygen limit characterised by baseline data

**As provided by Stoneco.

CP^ Categorising copepods as potential stygofauna of order Cyclopoida (Umwelt, 2714/RV/CPa/08092020)

CP* Categorising copepoda as stygofauna of order Cyclopoida (Umwelt, 2714/RV/CP/11052021)

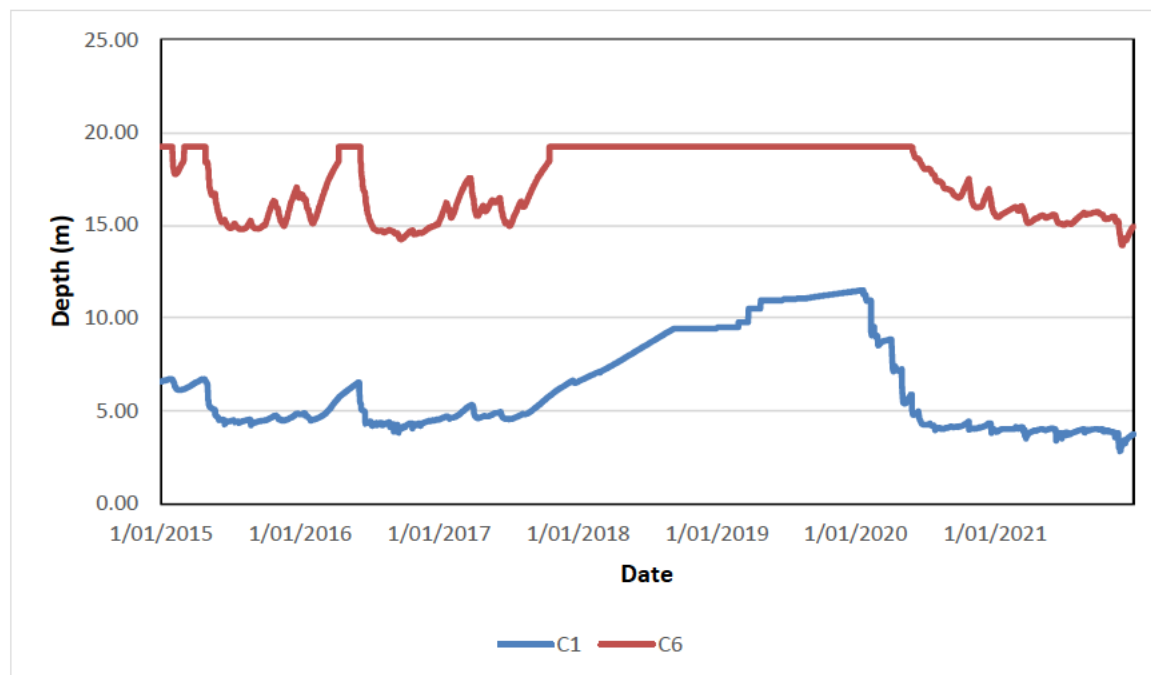
O* Categorising oligochaeta as stygofauna (Umwelt, 2714/RV/CP/11052021)

None – Stygofauna / Troglfauna not found

There was an exceedance of relevant criteria for Dissolved Oxygen (DO) from the sample collected from bore C6 in December 2021 refer to **Table 7**). It was observed from this sample there was black organic material, creating an organic smell. It is believed these were rotting tree roots and not from any land use activity.

Groundwater depth at bores C1 and C6, from the commencement of monitoring in January 2015 to December 2021 is presented in **Figure 3**. The figure indicates groundwater depth at C1 fluctuates less than the depth at C6. The result is consistent with the bore's location within the subjacent limestone aquifer, which is connected to the Isis River water table and influenced by a larger watershed upstream. Also noticed from the figure below; is the falling groundwater depth for both boreholes from mid-2017 to the end of 2019, followed by the rising of the depth from start of 2020 to present. This corresponds with a drought period for the local area that was broken during this reporting period current water depths are back to above 2015 levels with full recharge of the water table recorded.

Figure 3
Groundwater Depth at C1 and C6



Groundwater depth at Q13 was measured in June and November at 15.42m and 15.77m respectively. This is consistent with the previous drought breaking year.

The findings of the subterranean and GDE sampling are outlined in **Table 8**. Groundwater and leaf litter sampling is provided to a specialist GDE consultant which provides a report on the findings.

Table 8
Findings of Subterranean and GDE Sampling 2011-2021

Sampling Date	Sample period	Qualified Expert and Reference	Findings
25 March 2019	25 Mar – 29 Apr 2019	Rebecca Vere Principal Ecologist Umwelt Pty Ltd (2714/RV/CPa/22052019)	Groundwater and Leaf litter samples - One and three copepods were recorded in both sites C1 and Q12 respectively. These copepods are of recognised stygofauna order.
23 Sep 2019	23 Sep – 28 Oct 2019	Rebecca Vere Principal Ecologist Umwelt Pty Ltd (2714/RV/CPa/18122019)	Groundwater and Leaf litter samples - Twenty copepods were recorded at site C1. These copepods are of recognised stygofauna order.
22 Jun 2020	22 Jun – 20 Jul 2020	Rebecca Vere Principal Ecologist Umwelt Pty Ltd (2714/RV/CPa/08092020)	Groundwater and Leaf litter samples - One and Four copepods were recorded at sites C1 and Q13 respectively. These copepods are of recognised stygofauna order.
26 Oct 2020	26 Oct – 23 Nov 2020	Rebecca Vere Principal Ecologist Umwelt Pty Ltd (2714/RV/CPa/22122020)	Groundwater and Leaf litter samples – No stygofauna or troglofauna were identified during monitoring event.
24 Mar 2021	24 Mar – 19 Apr 2021	Rebecca Vere Principal Ecologist Umwelt Pty Ltd (2714/RV/CPa/11052021)	Groundwater and Leaf litter samples - One and Two copepods and One Oligochaeta were recorded at sites C6, C2 and Q13 respectively. These are recognised stygofauna order.
26 Oct 2021	26 Oct – 20 Dec 2021	Rebecca Vere Principal Ecologist Umwelt Pty Ltd (2714/RV/CPa/15032022)	Groundwater and Leaf litter samples - Two and One Springtail (possible troglofauna) were recorded at sites C1 and C2 respectively. One and Three Mites (possible stygofauna) were also recorded at sites C1 and C2 respectively.

4.2.5 Further Actions

Data will continue to be monitored in the next reporting period and any trends identified in monitoring data will be reported.

4.3 OPERATIONAL NOISE

4.3.1 Background

Noise monitoring was last conducted prior to the Reporting Period on 4th November 2019 completed By Bridge Acoustics See attached report in Appendix C.

EPL 13397 Condition L6.1 specifies a noise limit of 35 LAeq,15min at Residence R2 (see

Figure 1) 'Caves Ridge' during the day, from 7 am to 6 pm. The LAeq,15min is the acoustic average noise level from quarry sources, excluding noise from other non-quarry sources. No measurements were taken at the McIntyre residence as this is understood to be subject to acquisition condition by Stoneco upon request from the owner and was therefore excluded from the noise survey. Reporting will follow licence condition in accordance with Condition M5.1, as requested by the EPA. This EPA variation allows Stoneco to not do any noise monitoring unless requested

4.3.2 EIS Predictions

Section 4.8.5.2 of the EIS presents the results of the noise assessment. The EIS predicts noise levels at all surrounding residences would be below the relevant noise criteria except at the closest residence (R1) during normal operations with a light northwest wind.

Table 9 outlines EIS calculations for the modelled operational scenarios (Years 1 and 25) at R2, including the most significant noise sources contributing to the received noise.

Table 9
EIS Predictions for Noise at Residence R2

Scenario	Total Noise dB(A)Leq(15min)
Year 1 NW wind	<35
Year 25 NW wind	<35

Source - EIS Table 4.25

The EIS notes that as the quarry will not reach maximum production for several years, truck movements in the initial years of operation, would be well below those provided for within the assessment.

4.3.3 Monitoring Results

No monitoring was required as no request by EPA was made and no noise complaints were received for the period.

4.3.4 Further Actions

To continue any monitoring if required in accordance with licence condition.

4.4 DUST

4.4.1 Background

Air quality management at Timor Quarry is undertaken in accordance with the requirements of the Air Quality Management Plan. This document provides impact criteria and monitoring methods required to determine deposited dust at the locations shown on

Figure 1:

- Residence One (R1) (McIntyre); and
- Residence Two (R2) (Vaughan).

The requirement to measure air quality concentrations of particulate matter less than 10 microns (PM₁₀) (DA 308/08 Condition S1.18.2) is required “when the activity reaches the lesser of an annual throughput of 30,000 tonnes of product per annum or 1,100 truckloads of product per annum”. This requirement has not been triggered in the Reporting Period.

4.4.2 EIS Predictions

Section 4.2 of the Air Quality Assessment undertaken for the EIS, notes that depositional dust monitoring data is not available for the Project Site or the surrounding area. The Report states “As it is not appropriate to assume negligible levels of dust deposition due to surrounding agricultural operations, dust deposition associated with the Project Site will be assessed based on the incremental guideline of 2g/m²/month.”

Predicted increases in dust deposition at residences is outlined in Section 4.7.6.3 of the EIS. The results show the predicted average monthly dust deposition as a result of the proposed operations over a one year time frame. Predictions for Project years one and 25, relevant to Q1, R1 and R2 are reproduced in Error! Reference source not found.. The table indicates that the incremental dust deposition rates for the operational scenarios are predicted to be well below the incremental goal of 2g/m²/month at both residences.

Table 10
EIS Predictions for Dust Deposition

Residence	Dust Deposition – Annual Average (g / m ² /month)	
	Result	Incremental Goal
Scenario 1 – Year 1		
Onsite (Q1)	na	2
Residence 1 (R1)	0.2	2
Residence 2 (R2)	0.1	2
Scenario 2 – Year 25		
Onsite (Q1)	na	2
Residence 1 (R1)	0.4	2
Residence 2 (R2)	0.1	2

Source – Modified from EIS, Table 4.21
na – not applicable

4.4.3 Long Term Baseline

Baseline values for monitoring conducted between November 2011 and May 2014 was provided by Stoneco and is presented in **Table 11**.

4.4.4 Monitoring Results

Figure 4 presents the results of the depositional dust monitoring for 2021, together with the rolling averages from 2015-2021. **Table 11** compares the 2021 averages against relevant criteria, the rolling average and the baseline. Please note, sampling did not occur for the months of August to September 2021 and November 2021 due to covid restrictions and local flooding of access roads respectively.

Figure 4
Depositional Dust Monitoring

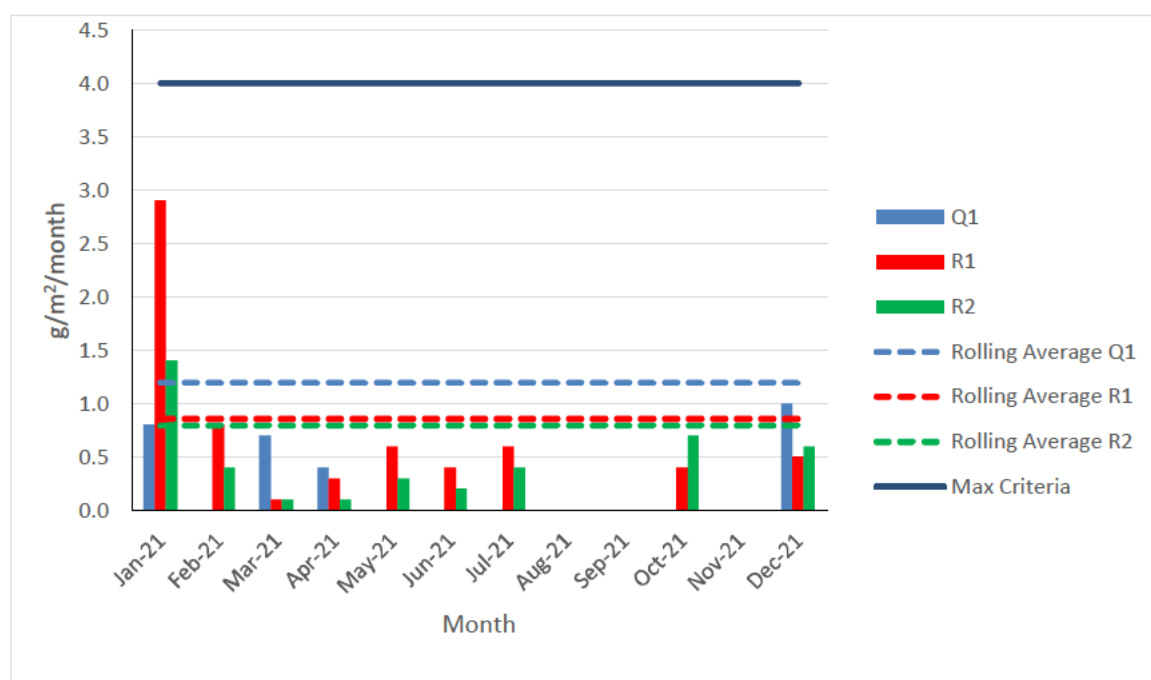


Table 11
Comparison of Dust Monitoring Results to Relevant Criteria

Receptor Location	Maximum Increase in Deposited dust level (g / m ² / month)	Maximum Criteria* (g / m ² / month)	Baseline Average** (g / m ² / month) (Nov 11 – May 14)**	Rolling Average (Jan 15 – Dec 21)	2016 - 2018	2019 Annual Average (g / m ² / month)	2020 Annual Average (g / m ² / month)	2021 Annual Average (g / m ² / month)
Q1	2.0	4.0	1.2	1.2		1.7 ⁺	1.5 ⁻	0.7 [*]
R1	2.0	4.0	1.1	0.9		1.1 ⁼	1.0	0.7

R2	2.0	4.0	0.4	0.8	See Appendix B	1.1 ⁼	0.9	0.5
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* Development Consent DA308/08 Condition S1.19

** Provided by Stoneco Pty Ltd

*Excludes two months of results due to bird dropping contamination Feb and Jul 2019 and Dust storm Sep 2019

⁼Excludes Sep 2019 result due to Dust storm

[^]Excludes two months of results due to bird dropping contamination Nov and Dec 2020

*Excludes five months of results due to bird dropping contamination in 2021

From the above results it was observed in February, May to July and October 2021, that samples collected from Q1 contained bird droppings, contaminating the sample and giving rise to high readings (5.1 to 28.2 g / m² / month respectively). Due to these occurrences, these results can be ignored. All other results were both below the maximum increase in deposited dust level of 2 g / m² / month and the maximum criteria of 4 g / m² / month.

Analytical results of the 2021 depositional dust results is presented in **Appendix A**.

4.4.5 Summary

Depositional dust averages for 2021 are comparable to the baseline and the rolling average for all sampling sites. This is expected due to decreased production levels (due to covid-19 restrictions) and wetter conditions. Depositional dust averages for 2021 remain well below the maximum increase and maximum criteria levels.

4.4.6 Further Actions

Stoneco has advised current strategies will be maintained for the next reporting period.

4.5 BLAST

4.5.1 Background

Stoneco has developed and implemented a Blasting Control Plan which describes statutory requirements related to blast vibration and overpressure and measures to ensure that blast events are effectively monitored and managed.

Monitoring of blast characteristics is undertaken at two blast sites (see

Figure 1), referred to as follows:

- R1 (McIntyre); and
- R2 (Vaughan).

The following data is recorded at each blast event:

- Blast location and name;
- Time and date;
- Weather conditions;
- Peak vector sum (mm/s); and
- Air overpressure peak (dB Linear Peak).

4.5.2 EIS Predictions

Section 5.4.4 of the EIS Noise and Vibration Assessment, describes the nearest residences approximately 600 m to the north east (R1) and 800 m to the east (R2) of the Timor Quarry. Predicted blast noise and vibration levels at distances relevant to R1 and R2 are reproduced in **Table 12**.

Table 12
Predicted Blast Noise and Vibration Levels

Distance	Peak Particle Velocity (mm / sec)	Overpressure dB (Linear)
500 m	0.95	114
750 m	0.5	110
1,000 m	0.16	103

Source: Adapted from Table 7 Noise and Vibration Assessment, EIS

4.5.3 Monitoring Results

The two most recent blast events occurred in September 2020 (omitted from the 2020 AEMR) and February 2021. Both were in the south-eastern section of the quarry extraction area and placing it within the closest distance to R1 and R2.

Table 13 outlines the results of blast monitoring against the relevant criteria. Both the 2020 and 2021 blasting was compliant with the relevant criteria.

Table 13
Blast Monitoring

Blast Reference ID	Blasting Results at Residential Receptors	Maximum Criteria*	Time / Date	R1 Result**	R1 Predicted	R2 Result**	R2 Predicted
Timor Quarry	Blast Overpressure dBA	115 dBI	18 September 2020	No trigger	100 dBI	No trigger	100 dBI
	Ground Vibration (mm/sec)	5 mm / sec		No trigger	0.51mm/sec	No trigger	0.51mm/sec
Timor Quarry	Blast Overpressure dBA	115 dBI	10 February 2021	No trigger	108 dBI	No trigger	108 dBI
	Ground Vibration (mm/sec)	5 mm / sec		No trigger	0.65mm/sec	No trigger	0.65mm/sec

*Schedule 2 S1.4 Development Consent DA308/08

**Provided by Stoneco

4.5.4 Summary

There were no exceedances of the relevant blast criteria during the Reporting Period and the year prior. To date there have been no exceedances of blast criteria at Timor Quarry.

4.5.5 Further Actions

Stoneco has advised current strategies will be maintained for the next reporting period and will continue to be reviewed following blast events and monitoring.

4.6 ECOLOGY

4.6.1 Background

Stoneco has developed a Biodiversity Management Plan prepared in accordance with DA 308/08, Conditions S5.2(c) and S5.5, to ensure that biodiversity is effectively monitored and managed.

DA 308/08, Condition S1.21.9 states *“An annual inspection is to be made by persons whose qualifications and/or experience to undertake such inspections, have been approved by Council, during each of the first five (5) years of operation of the quarry of the nesting boxes placed on the Project Site, and also of the health of the planted White Box, Yellow Box and Bundy seedlings. The inspection report must include a review of the condition and use of the nesting boxes. Any planted White Box, Yellow Box and Bundy trees that are found to have died are to be replaced, with any actions taken to help ensure that the new plantings have a better chance of becoming established.”*

DA 308/08, Condition S5.5 (vii) states *“Monitoring of the progress of the implementation of the Biodiversity Management Plan is to be undertaken and reported in the Annual Environmental Management Report.....Photographs from fixed and permanent reference points (include baseline / pre-treatment photographs) are to be established.”*

4.6.2 EIS Predictions

Section 4.4.6 of the Flora Assessment undertaken for the EIS assessed that the proposal *“would maintain or improve biodiversity outcomes, and in particular, would not reduce the long-term viability of a local population of the any flora species, population or ecological community, accelerate the extinction of the any flora species, population or ecological community or place it at risk of extinction, or adversely affect critical habitat. The assessment noted that “Given the implementation of the proposed mitigation measures, it is assessed that there would not be a significant impact on threatened species, populations or communities... and that the proposal would meet the ‘maintain or improve’ principle.*

Section 4.4.6 of the Fauna Assessment undertaken for the EIS concluded *“With the implementation of the proposed safeguards and mitigation measures, it is considered that the degree of the impact of the proposal is unlikely to have an adverse effect on the life cycle of any threatened fauna species known or likely to occur within the Study Area to the extent that a viable local population of the species is likely to be placed at risk of extinction.”*

4.6.3 Monitoring Results

Visual inspection of nesting boxes was conducted by Stoneco Management through 2021.

4.6.4 Further Actions

Maintain a visual management and record occupation if any.

5 COMPLAINTS AND COMMUNITY LIAISON

An Online Complaints line connected to the company's Website was set up in April 2018. No formal complaints were received during the 2021 reporting period.

6 ENVIRONMENTAL IMPROVEMENTS

During the 2021 Reporting Period, Stoneco maintained monthly Environmental Operations Report (EOR) which details the results of on-site inspections and suggests actions to control or reduce environmental risks. .